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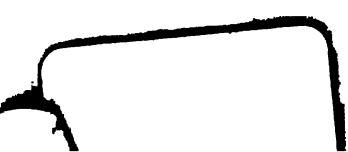
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A. E. S.





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No. 1.

A Course of Lectures ON THE THEORY AND PRACTICE OF OBSTETRICS.

By W. TYLER SMITH, M.D.,

PHYSICIAN-ACCOCUCHEUR TO ST. MARY'S HOSPITAL, AND LECTURER ON MIDWIFERY AND THE DISEASES OF WOMEN IN ST. MARY'S HOSPITAL MEDICAL SCHOOL.

LECTURE XI.

CAUSES OF ABORTION.

GENTLEMEN,—In the last two lectures, certain special disorders of pregnancy have been considered. We now come to treat of the particular malady to which the gravid woman is liable—namely, the premature loss of the Ovum. It will be seen that many of the other disorders of the pregnant state tend to this catastrophe, and require to be borne in mind in connexion with it. Abortion consists in the separation and expulsion of the immature ovum from the uterus. The real adhesion between the ovum and the mother is at the points of connexion between the chorion and decidua. At first, this connexion is slight. William Hunter stated that in the earlier part of gestation, the chorion and decidua may, by delicate manipulation, be separated from each other without laceration. Afterwards, the intimate connexion between the chorion and decidua, and the fusion of the two parts, and of the fetal and maternal vessels in the placenta, renders the separation more difficult, and the risk of abortion is consequently diminished.

The older accoucheurs paid much attention to the real or supposed loss of the ovum very shortly after impregnation. Married women who passed over a monthly period by a few days, and then menstruated profusely, were believed to have lost an ovum. This was called an Effluxion, if it occurred before the tenth day, "because," as Smellie

observes, "the embryo and secundines are not then formed, and nothing but the liquid conception, or genitura, is discharged." In all probability, such cases are not uncommon, and the ovum is unobserved, not from its liquid condition, but because it is so little above the size of the unimpregnated ovule as not to be visible in the discharges. An ovum of fourteen days has been described by Velpeau, and its size did not exceed the following diagram. In the expulsion of an ovum of an earlier date than this, the symptoms hardly differ from those of profuse menstruation.

FIG. 52.



For practical purposes, Abortion may be defined as the premature expulsion of the ovum at any time after the ovum becomes visible, and before the twenty-eighth week of pregnancy. Up to the latter date, the foetus is not viable, but after the sixth month, it may with care be reared. There are certain differences requiring notice in abortions occurring before and after the end of the second month, dependent on the different size of the uterus, and the altered development of the vascular connexion between the uterus and the ovum, before and after the formation of the placenta. The discharge of the ovum between the end of the second month and the twenty-eighth week, has in consequence been termed Miscarriage; but bearing in mind the peculiarities mentioned, it will be convenient in practice to consider all expulsions of the ovum, previous to the time at which the foetus becomes viable, under the head of Abortion.

This termination of pregnancy is exceedingly frequent. Of two thousand pregnant women who applied to the Manchester Lying-in Hospital, Dr. Whitehead ascertained that the collective number of their abortions had amounted to one thousand two hundred and twenty-two. Many of these were

young women in their first pregnancies, or women who had not completed the child-bearing epoch. As regards the individual results, Dr. Whitehead found that of these two thousand women, thirty-seven out of every one hundred mothers had aborted before they had reached the age of thirty years. The proportion of women who have lived in wedlock until the menstrual decline, to whom abortion occurred, approached to ninety per cent. There are, in fact, few women who have passed through the child-bearing epoch, and actually borne children, who have not aborted once or oftener. This is probably one of the subjects open to the greatest improvement in obstetric practice. Considering that at the last census the married female population of England and Wales, between the ages of fifteen and fifty-five, amounted to 2,553,894, the loss of foetal life must be enormous. The date at which the majority of abortions occur, is from the second to the fourth month of pregnancy. Taking the particular pregnancies in which abortion is most likely to happen, there seems to be greater danger of this accident in the first pregnancy, particularly amongst the upper classes, and in those later pregnancies which occur before the cessation of the menses.

We have seen, while considering the signs and disorders of pregnancy, that the uterus is in reflex relation with many important organs. These organs react upon the uterus, and prove in many cases the predisposing or active causes of abortion. In my work on "Parturition," I stated that I had seen abortion caused by irritation of the Mammary nerves, as when abortions occur during lactation from the irritation of constant suckling. That it is not mere weakness or exhaustion in some of these cases is proved by the fact that the mammary secretion may cease upon the occurrence of impregnation, but that a plentiful supply of milk returns after the occurrence of abortion. The contraction of the uterus after delivery from irritation of the mammae is well known. When I first suggested this cause of abortion in some cases, the idea was roughly criticized, but it has been adopted in the recent work of Dr. Gunning Bedford, of New York, and Professor Scanzoni has founded upon it a method of inducing premature labour by irritation of the mammae.

Irritation of the Gastric nerves will sometimes produce abortion. It is astonishing what an amount of nausea and vomiting the uterus will bear without being excited to expel its contents, and there is a belief, generally well founded, that sickness prevents the occurrence of abortion from rigidity of fibre or imperfect uterine devolution. But cases do occur in which abortion is apparently brought on, as a reflex pathological phenomenon, produced through the medium of gastric irritation. Irritation of the Trifacial nerve may also produce abortion. This happens sometimes from the irritation of cutting the wisdom teeth, the extraction of a decayed tooth, or the irritation of constant odontalgia. Vesical or Renal irritation, as from the presence of a stone in the bladder, or irritation of the kidneys in albuminuria, is sometimes the

cause of abortion. Ovarian irritation has a like effect, as shown by the tendency to abortion at the catamenial dates, particularly in women who have been the subjects of dysmenorrhœa. The production of abortion by the irritation of the Rectal nerves is a well-recognised occurrence. It may happen from hæmorrhoidal inflammation, the irritation of ascarides, the action of violent purgatives, diarrhœa, or dysentery, or the opposite condition of excessive constipation. The mechanical effects of vomiting, coughing, sneezing, or straining of any kind, will occasionally cause abortion in delicate subjects.

Irritation of the Uterus and Vagina may excite abortion. Plugging the vagina is sometimes practised as a means of inducing abortion artificially. In abortion excited by violent horse or carriage exercise, the accident depends upon the irritation of the uterus, and especially the os and cervix uteri, by the head of the child, during the succussion which occurs. Coitus, plugging the os uteri, disease of the os and cervix, procidentia, anteversion, and retroversion, the implantation of the placenta over the os uteri, cancer, fibrous tumours of the uterus, mechanical injuries and metritis, may all cause abortion. In abortion depending upon the disease or death of the ovum, it is the irritation of the uterus by its abnormal contents which directly excites the act of abortion. In the case of abortion from the irritation of the uterus by the state of the rectum, stomach, mammae, &c., the action of the uterus is, in the first instance, purely excito-motor and reflex. When, however, the reflex action of the uterus is established, the peristaltic action of the organ combines with the reflex uterine action. In the case of abortion from local uterine irritation, or from the irritation of the uterus by a dead or diseased ovum, the reflex and peristaltic actions of the uterus are induced simultaneously.

We may consider abortion from reflex action, as being in some points of view comparable with spasmodic asthma, or any other excito-motor disease. From certain irritating causes, an excitable condition of the excito-motor arcs concerned in parturition is induced. This state of excitability once produced, slight causes, which in healthy subjects would produce no disturbance whatever, are sufficient to produce morbid or spasmodic parturition. This excitability is not suddenly reached. It requires that the nervous arcs, whether mammary, rectal, or other, should be irritated for a considerable time, when an excitable, charged, or polar state of the uterine nervous system is produced. The period preceding a case of reflex abortion may be likened to the time preceding an epileptic attack.

Certain agents have the power of exciting the uterus to contract, and are hence called Oxytoxics. The oxytoxic effects of the ergot of rye, cannabis Indica, savin, borax, galvanism, and the inhalation of carbonic acid, or its retention in the blood in asphyxia, are very generally believed in. Abortion has been often caused by the ergot of rye. During accidental or intentional poisoning by carbonic

acid, the ovum has been found to be expelled. In the celebrated *razzia* in Algeria, conducted by the present Marshal Pelissier, in which a number of Arab women were suffocated in the caverns of Dahra, many of those pregnant were found to have aborted. The same thing occurred in a similar exploit by the celebrated Chevalier Bayard. In other forms of death from asphyxia, as in drowning, sudden abortion has been known to occur. Many of the poisons, when taken by pregnant women in fatal doses, have caused, in the first instance, the loss of the ovum. Certain pathological states excite contractions of the uterus, and are frequently the cause of abortion. Loss of blood; exhaustion, from whatever cause arising; the syphilitic poison; mercurialization; zymotic diseases, as small-pox, scarlatina, and fever; chorea; visceral inflammation; albuminuria; and, according to Lugol, the strumous diathesis, may excite the uterus to the premature expulsion of its contents. Emotion is another important cause of abortion. It may be produced by the emotions of fear, anger, grief, or any other violent mental disturbance. Under the influence of terror and pain, martyred women have aborted at the stake. Of these oxytotoxic agencies, some affect the nervous centre, and are in this respect to be distinguished from the ex-centric or reflex causes of abortion. The ergot of rye, for instance, passes into the blood, and affects the spinal centre, being specially directed to the lower portion of the spinal marrow, and to that part of it in relation with the uterus. In the case of emotion, the influence is distinct from other causes of abortion in being dynamic or psychical. Others, amongst the causes of abortion now enumerated, probably affect the nutrition and life of the ovum, and in this way lead to abortion.

The amount of disturbance to which some women may be exposed without inducing abortion is extraordinary. Mauriceau relates the case of a woman, in the seventh month of pregnancy, who fell from the window of a house, and, besides extensive bruises, broke one of the bones of the forearm and dislocated the wrist, without aborting. Dr. Henry Davies once told me of the case of a woman, who, throwing some water from a window, lost her balance, and fell into the street, breaking both her thighs, but recovered without abortion. Dr. Marshall Hall rendered a frog tetanic by strychnia at the time the oviduct was full of ova, and the ova were not expelled during the tetanoid symptoms, but some days afterwards, when the spasms had nearly disappeared. Dupuytren relates the case of a woman who had become the subject of traumatic tetanus during pregnancy, but who, nevertheless, recovered and went her full time. Other women abort upon the slightest occasion. A habit of abortion appears to be acquired in some cases, and abortions are repeated many times in succession, without our being able to detect any very obvious cause. I have known a woman abort ten times in five years; and another who in eight years had fourteen abortions, and gave birth to one still-born child. Madame Boivin

mentions that she had ascertained by dissection that, in women who abort regularly, the uterus has sometimes contracted adhesions to other organs. I have several times known abortions to occur in women who had been the subjects of sloughing and cicatrization of the vagina, after previous labours, or who had been affected with pelvic cellulitis and pelvic abscess. In some women it appears as if the uterus could not be developed beyond a certain point. But these points do not account for all the cases of habitual abortion.

There is one other cause of abortion on the maternal side, which I believe to be of very great importance. In treating of menstruation, and the formation of the decidua, we have seen that the mucous membrane of the uterus is concerned in the menstrual discharge, and that the decidua consists of the altered mucous membrane itself. Now, if this doctrine of the formation of the decidua be correct,—and there is hardly any matter within the limits of modern research, upon the subject of generation, which seems better established; if this be true, I say, we must push the matter into the domain of pathology. Dr. Simpson has done this in a very able manner in relation to membranous dysmenorrhoea. Denman and others saw that the mass discharged in these cases resembled the decidua, and made the comparison between the two substances. But Dr. Simpson, after the true nature of the decidua had been made out, was able to carry the comparison further, and he has proved that the membrane discharged in membranous dysmenorrhoea is, like the decidua, the mucous membrane of the uterus itself hypertrophied, and exfoliated or thrown off at a catamenial period. Many years ago I drew a comparison between menstruation and abortion and parturition. As regards the decidua, there is no great difference between an abortion a few weeks after conception and membranous dysmenorrhoea, except that in abortion the decidua is loaded with the fruit of the womb, and may be discharged more or less in a state of disintegration. Every abortion really consists in the throwing off of the mucous membrane of the uterus and the ovum which has been developed upon its surface. I believe that in many cases of abortion, as in menstruation of healthy and morbid type, the disintegration and exfoliation of the mucous membrane or decidua is the first step in the process, and the direct cause of the loss of the ovum. From this point of view we must consider the show in cases of abortion, and the continuous sanguineous discharge, as similar to the discharge in menstruation. In many cases it happens that abortion is threatened, and there is a coloured discharge for many days without the loss or injury of the ovum. In these cases the discharge probably takes place from the surface of the decidua mucous membrane, as suggested by Dr. Matthews Duncan, in reference to menstruation during pregnancy. Abortion does not take place in such cases, probably because the disintegration of the decidua does not occur at the part at which the ovum or the placenta is implanted upon it, or not to a sufficient extent to in-

jure it. In abortion in the later periods of pregnancy, the comparison between the loss of the ovum and menstruation holds good, only at this time the decidua serotina has become by far the most important part of the uterine mucous surface. In all cases of abortion, this menstrual condition of the developed mucous membrane of pregnancy plays an important part, and is the chief cause of the sanguineous discharge; but in many cases it is probably the actual cause of abortion. The tendency of abortion to occur at the catamenial dates has long been a matter of observation. In abortions occurring at the menstrual dates of pregnancy, the periodical influence of the ovaria, as well as of the uterine mucous membrane, must be considered.

We have now considered the principal causes of abortion referable to the mother: others remain, in which disordered conditions of the chorion and decidua, or of the maternal and foetal portions of the placenta, are concerned. There is also another class of causes, in which the foetus and its diseased conditions tend to the production of abortion.

A new cause of abortion, of great importance, affecting the maternal and foetal structures of the ovum, has been made out within the last few years, chiefly by the original researches of Dr. Robert Barnes: I allude to Fatty Degeneration of the chorion and placenta. Kilian had noticed a solitary case, but the first systematic account of the disease we owe to Dr. Barnes, who was assisted in his microscopical investigation of the subject by Dr. Hassall. This form of degeneration may affect the secundines at any time between the early weeks of pregnancy and the termination of gestation. Fatty degeneration may exist in the placenta as a post-mortem change—that is, it may occur in utero after the death of the foetus. It may happen also as the result of the transformation of effused fibrine in inflammatory disease of the placenta, or of a clot of blood in hæmorrhagic effusion. Lastly, it may consist of the metamorphosis of portions of the maternal and foetal structures of the placenta during the life of the foetus. The latter pathological phenomenon is that which is of the chief importance in relation to abortion.

In a placenta affected with fatty degeneration, the lobes of the placenta are altered in appearance, some of them being of a yellow, fatty colour, brittle, and exsanguine; the rest presenting their ordinary characters. Examined more minutely, the tufts are found to be glistening, hard, and tallowy, and not expanding when placed under water, as is the case with the villi of healthy placentæ. Under the microscope, the villi are seen to be studded with spherules and droplets of fatty matter and oil. The fatty material is found principally in the cells of the villi, and in the coats of the blood-vessels of the villi. When the fatty degeneration of the vessels exists to any extent, the vessels do not carry red globules. The villi and the vascular loops affected with degeneration are knobbed and misshapen in appearance. Dr. Barnes believes the degeneration, or retrogressive metamorphosis, to commence mostly in the villi and decidual cells

of the placenta. He has pointed out that this state of things must materially interfere with the nutritive and circulatory functions of the placenta, and that if it proceed to any great extent, it must inevitably destroy the foetus by cutting off the connexion between the maternal and foetal circulations. Dr. Barnes supposes that, from the friable, non-resilient condition of the degenerated lobes of the placenta, partial separations must occur, leading to hæmorrhage and abortion. He suggests also that partially degenerated blood-vessels may burst, and sometimes lead to intra-placental hæmorrhage, or placental apoplexy. Sometimes

FIG. 53.

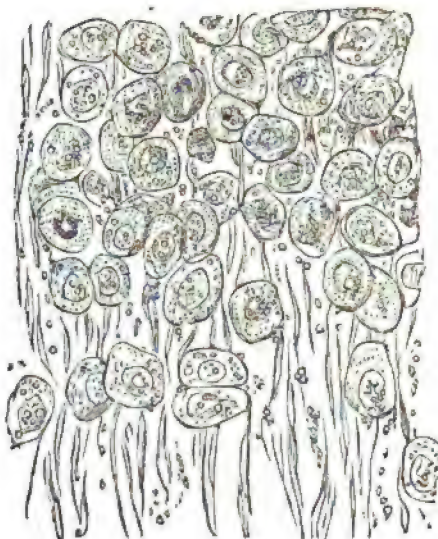
Cells of the decidua as they appear in the healthy placenta.
490 diameters.

FIG. 54.

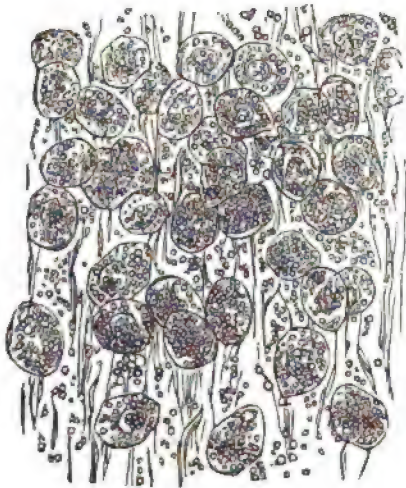
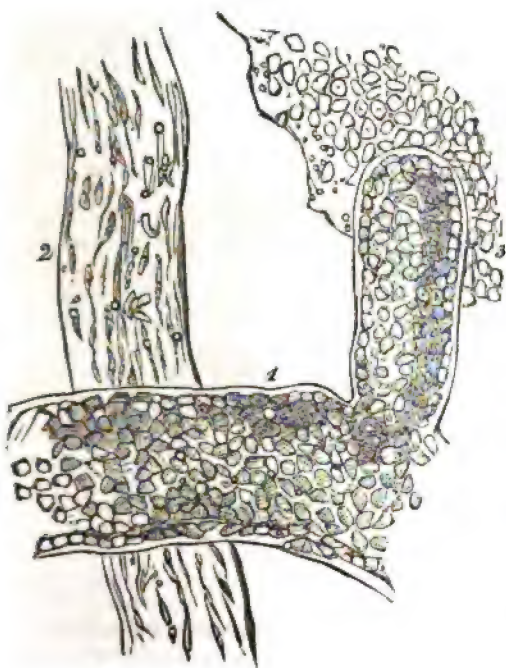
Cells of the decidua in a state of fatty degeneration.
490 diameters.

FIG. 55.



1, Vessel with its investing chorion; 2, The same deprived of its chorion; 3, Chorion detached, showing its cellular function. 450 diameters.

the dead ovum is at once expelled; at other times the chorion or placenta remains in connexion with the uterus, and undergoes a further metamorphosis, so as to consist very largely of fatty matter, before it is expelled. In all probability, many of those cases in which pregnancy repeatedly goes on in the same woman to the full time, and the foetus is found to have died shortly before the time of birth, the cause of death will be found to be fatty degeneration.

The metamorphosis of portions of the placenta explains many of the descriptions of the placenta in a morbid state found in obstetric authors before the subject of degeneration was understood. Dr. Druitt has contended, that in the normal placenta, at the full time, the signs of commencing fatty degeneration are present, and this is, no doubt, true; but, under healthy conditions, the fatty metamorphosis cannot be extensive, otherwise the health of the foetus could not be preserved. Dr. Druitt points out, that in the placenta, as a caducous organ, the signs of decadence begin to be present at the time of its maturity. As regards the cause or origin of the fatty degeneration of the placenta, chorion, or decidua, Dr. Barnes refers it chiefly to an imperfect germinal or formative force on the side of the ovum. He is also of opinion that, dependent as the ovum is upon the vascular system of the mother for support, any imperfection in the nutriment supplied to it must contribute to the diseased state of the placenta. It is only upon this hypothesis that we can hope to control this malady, by rendering the system of the mother as healthy as possible during gestation. The later

researches of Dr. Barnes lead him to believe that constitutional syphilis, maternal or paternal in origin, is a frequent cause of fatty placenta.

FIG. 56.



1 and 2, Branches partially deprived of chorion, and showing much fatty matter; 3, Blood-vessel entirely deprived of its chorion, and in a state of degeneration. 450 diameters.

The placenta is subject to congestion and inflammation, and their results, and these affections are not unfrequently the causes of abortion. Congestion of the placenta leads to what is termed apoplectic effusion. Blood may be poured out either on the foetal or external surface of the placenta; it may escape into the parenchyma of the organ; or it may be poured out on the maternal surface. The loss of blood may lead to the death of the foetus, and in this way produce abortion, or it may excite the separation of the ovum, and contraction of the uterus. In other cases, the blood effused coagulates, its fluid portions are removed, and a fibrinous mass remains without doing any great injury. In inflammation of the placenta, or placentitis, effusion of lymph may occur, or the disease may pass on to hepatization, suppuration, or gangrene. Sometimes, when the inflammation affects the internal surface of the placenta, adhesions form between the placenta and the external surface of the ovum. In this way, the placenta has been found adherent to the forehead or body of the foetus. This disease has been investigated by Brachet and Wilde, and one of the earliest and most elaborate memoirs of Professor Simpson was chiefly devoted to this subject. Its symptoms are obscure, consisting of pain in the uterus, near the site of the placenta, pains in the back and thighs, and general fever. In cases where I have suspected placentitis, I have examined with the stethoscope, but have not found any modification of the uterine sounds. The causes of placentitis are

not very obvious, beyond mechanical injuries, and the great afflux of blood to the organ, which occurs during pregnancy. Congestion and its results are probably common causes of abortion, though it is by no means certain that in all cases of abortion in which effused blood is found in the placenta, or the membranes, the effusion has been the cause of abortion. In many cases, the effusion occurs, without doubt, during the progress of abortion, from other causes. The treatment of placentitis and placental congestion consists in local or general blood-letting, according to the amount of pain and the constitution of the patient, counter-irritation over the uterus, and other means for equalizing the circulation. Dr. Simpson is of opinion, that many of the cases of repeated abortion in the same person depend upon placental congestion. The placenta is liable to other diseases, which have a tendency to repetition, such as calcareous degeneration, tubercular deposits, and atrophy or hypertrophy. In the case of a syphilitic ovum leading to abortion, the placenta is very commonly diseased.

FIG. 57.



An apoplectic ovum: blood being effused in masses under the fetal surface of the membranes.

When from any cause the foetus dies, the circulation in the foetal portion of the placenta is suspended; this in turn affects the circulation on the maternal side; the ovum becomes a foreign body, and abortion generally takes place. Sometimes, however, the placenta is still nourished imperfectly, and the dead ovum is retained in utero for a variable time. The foetus is liable to many diseases which may tend to the death of the ovum, such as inflammation of its serous membranes, dropsies of the serous cavities, or the amnion, disease of the liver or kidneys, tubercular diseases, diseases of the umbilical cord, knots upon the cord, twisting of the cord tightly round the neck of the child, and various other affections which are sufficient to destroy its vitality. I have seen a case, in which

the head was nearly amputated by the twisting of the cord round the neck. Probably a diseased ovum excites the uterus to expulsive contractions in many cases, before actual death of the ovum has occurred.

FIG. 58.



Ovum showing morbid enlargement of the umbilical cord.

LECTURE XII.

TREATMENT OF ABORTION.

GENTLEMEN,—The first symptoms of abortion are a sanguineous discharge, and the occurrence of lumbar, hypogastric, and coxal pain. The pains which precede abortion are very much like those which precede or accompany a catamenial period. Some women abort, however, without having suffered much, if any, pain. It frequently happens that a distinct rigor, or frequent shiverings, usher in abortion. There is sometimes diarrhoea, and, still oftener, an irritable condition of the bladder. Coldness of the breast and abdomen is sometimes complained of, and there is often a cessation of sickness, where this has been troublesome. On being called to a case of supposed abortion, an examination should always be proposed, and made, if possible. It may happen that in cases of supposed abortion there may be no pregnancy at all. Great care should be taken, on introducing the finger, not to give pain or use any violence, lest the tendency to expulsion should be increased. In threatened abortion, the os and cervix uteri will generally be found open to some extent, and the body of the uterus may be felt in front of the os, lower in the pelvis than natural, and hard, as if firmly contracted. When abortion is actively proceeding, the ovum, or part of the ovum, may sometimes be felt high up in the cervical canal, or it may be partly extruded from the os uteri.

The first consideration, in a case in which the symptoms of threatened abortion have occurred, is whether or not the ovum can be preserved. With this end in view, all irritations of a reflex kind should be avoided, or removed, as much as possible. General, local, or vascular excitement should be

treated by a soothing regimen and diet. It is rare that cases are met with requiring general blood-letting; but leeching is sometimes useful in cases of uterine plethora, particularly when the symptoms occur at what would, in the absence of pregnancy, have been a catamenial date. The leeches should be applied to the inside of the thighs, or the perinæum. When nervous excitement predominates, a full opiate is of great service. Opiates, in full doses, are also especially called for when there is intermittent uterine pain, or the continued pain of the back and lower part of the body similar to painful menstruation. Dr. Fleetwood Churchill has given the cannabis Indica with good effect as an anodyne, and with a view to its restraining sanguineous discharge. In the earliest abortions, astringents are very valuable, the loss of blood in such cases very much resembling menorrhagia. The acetate of lead, in combination with opium, the mineral acids, the oxide of silver, alum, gallic acid, are the best remedies of this kind. If the discharge is profuse, iced drinks should be given. Otherwise, the beverages of the patient should be cool, without being absolutely cold, in order to avoid uterine contraction. In the treatment of abortion, it must always be borne in mind, that in diet and medicine any agents which excite contraction of the uterus may arrest hæmorrhage for the moment, but with danger of exciting further separation of the ovum. We must be careful, therefore, not to excite any powerful uterine action. The local application of cold to the vulva, and the introduction of sponge, or pieces of lint dipped in water, into the vagina, is very useful, within certain limits; but it must be remembered that excessive cold excites uterine contractions, and so, also, does the sponge or linen plug, if it should be large enough to irritate the vagina mechanically. Perhaps the most important of all the means at our disposal for the relief of abortion is rest in the horizontal position. The patient should be kept in bed in a cool apartment, lightly covered with clothes, as long as any coloured discharge continues, and for some days afterwards she should be kept upon a couch, and not allowed to assume the upright position or to walk. When the uterus is in the irritable and congested condition which accompanies abortion, the standing posture, or considerable movement of any kind, greatly adds to the probabilities of abortion. The mind of the patient should be kept as quiet as possible, and all exciting or alarming intelligence withheld from her. The bowels should be kept open, if necessary, with the mildest laxatives. I prefer the senna confection, with a little bitartrate of potash, as an aperient. Castor oil, as I believe, irritates the uterus and mammæ, and should not be given. When the threatening of abortion has occurred at a catamenial date, every precaution should be taken, as the next monthly period comes round, in the way of avoiding irritation, and preserving quiet of body and mind. Every pregnant woman should be told to take note of the catamenial dates throughout pregnancy, and observe greater care than usual at these times, particularly if she has been the subject of abortion. The attempts to prevent abortion

should be carried out perseveringly, as it sometimes happens that women suffer from the symptoms of abortion for a considerable time, slight sanguineous discharges lasting for weeks, and yet, with continual care, they go on to the full term. It sometimes happens that the bleeding is very profuse, and the os uteri so closed that the finger could not possibly be introduced into the uterus. All the more powerful astringents may have been tried in vain. In such cases the vagina must be plugged firmly with lint or sponge. This arrests the bleeding almost invariably, and tends to promote coagulation at the mouths of the bleeding vessels. If, however, it is necessary to continue the plugging for any length of time, the uterus becomes excited by the mechanical irritation, and throws off its contents. Sometimes the loss of blood is so great as to require the free administration of brandy, ammonia, and other stimulants. As abortions frequently spread over a considerable time, every care should be taken to support the strength of the patient. In abortions at the fourth or fifth month, the hæmorrhage may be so profuse and sudden as to be alarming from the first. This is particularly the case in abortions occurring about the time of the cessation of the catamenia. In such cases, if the hæmorrhage cannot at once be arrested by astringents, cold, and the tampon, the membranes should be ruptured with a view to stop the hæmorrhage, and to excite expulsive action of the uterus.

When an abortion is threatened, the accoucheur should order all the discharges to be saved for his examination. Every clot and every portion of solid matter should be carefully inspected. Otherwise it may happen that the patient or her nurse shall tell you she has aborted when she has not done so, coagula having been mistaken for the ovum. Or it may occur that the ovum having passed unnoticed, and slight or profuse hæmorrhage continuing, as it sometimes does, for a considerable time, the accoucheur is puzzled by expecting an abortion long after it has been accomplished. In connexion with these points, it must be borne in mind that cases occur in which the ovum appears to be dissolved, and slowly discharged with sanguineous matters, just as the decidua is discharged in the lochia after parturition. A delicate ovum of a few weeks may disappear within the uterus, as occurs in certain cases of molar gestation, and the membranes may be broken down and discharged as detritus. Either of these three cases may prove very embarrassing to the practitioner. Whatever care may be observed, cases will occasionally occur in which women who have passed two or three menstrual periods, and exhibited the signs of early pregnancy, will be seized with the symptoms of abortion, and suffer from a sanguineous discharge for a considerable time, without passing any detectible portions of an ovum. After this the patients may menstruate regularly, and it becomes exceedingly difficult, or impossible, to decide whether they have aborted or suffered from a temporary suppression only.

The indications which should make us abandon all hope or intention of saving the ovum are, sudden losses of blood to such an extent as to imperil

the life of the mother, or such a continuous drain as seriously to endanger her health; it being also certain, or nearly so, that in such cases the ovum is diseased or already dead. If, on examination, we can feel the ovum at the os uteri, or in the cervix uteri within reach of the finger, we may be certain that its expulsion is only a question of time. As a rule, there is little hope of saving the ovum after the rupture of the membranes and the discharge of the liquor amnii. I have, however, seen at least one case in which gestation went on to the full term after the discharge of the liquor amnii at the fifth month. Fœtid discharges, particularly in early abortions, are a pretty sure sign of the death of the ovum.

When all expectation of saving the ovum has been abandoned, means must be taken to obtain its removal from the uterus. If the bag of the early ovum can be felt with the finger in the cervix uteri, it can generally, by careful manipulation, be separated from the uterus, and got away by the finger alone. Sometimes it is necessary to introduce the hand into the vagina, in order to get the finger into the uterus; and if the hæmorrhage is alarming, the case urgent, and the os uteri sufficiently dilated to admit the finger, there need be no hesitation in adopting this measure. I have never seen any ill effects arise from such an introduction of the hand and finger. When the os uteri is undilated, and the hæmorrhage is great, Dr. Simpson recommends the introduction of one of his sponge pessaries, with a view to the mechanical dilatation of the os and cervix. The only precaution necessary in such cases, as in all instances in which sponge is used in the vagina, is not to allow the sponge to remain long enough to become fœtid. The ergot of rye and the cannabis Indica may be given for their oxytotoxic effects in cases where it is thought unadvisable to remove the ovum, or portions of the ovum, mechanically. Galvanism has been suggested by Dr. Robert Barnes, and from what I have seen of its action in cases of intra-uterine polyp, I have no doubt it would contribute to expel an ovum in a difficult case of abortion. We may turn the reflex connexion between the rectum and the uterus to great account in the treatment of abortion when there is no hope of saving the ovum. A drastic cathartic enema will often complete the expulsion of an ovum in the most rapid manner. Various instruments have been proposed and recommended for the mechanical extraction of a partially-detached ovum. There is, however, no instrument equal to one or two fingers when they can be introduced. The last invention of this kind is an instrument proposed by Dr. Fleetwood Churchill, on the principle of the familiar apparatus for getting a cork from the inside of a bottle. In France, a small forceps, somewhat resembling the lithotomy forceps, is used for the same purpose. Dewees invented a wire crotchet for the extraction of the ovum. It must be said, however, that, with all instrumental devices for the removal of the embryo, there is danger of injuring the uterus, and with the hand in the vagina, a case can hardly

occur in which the embryo, membranes, or portions of the latter, when retained, cannot be detached and brought away by the finger. Time and patience are sometimes necessary for this manipulation, but I have never known it fail.

I have seen cases where it was necessary to give chloroform before introducing the hand. In a case I saw with Mr. Ballard, of a retained placenta in an abortion at the fifth or sixth month, no other means would have enabled us to extract the remains of the ovum. The ordinary modes of procuring its removal had been tried in vain. The patient was in such a state of frenzied excitement that any introduction of the hand would have been impossible while she remained conscious. The cord had broken and the placenta had been retained thirty-six hours, and there was no choice but that of leaving the placenta or giving chloroform. There was no difficulty in introducing the hand, but the placenta had to be peeled from the surface of the uterus. The dangers of retained placenta are well known, and in a case of difficulty I should not hesitate to advise the use of chloroform in similar cases.

The condition in which the ovum is expelled varies greatly in different cases. The most favourable way in which an early abortion can occur is where the detachment of the entire ovum takes place before the act of expulsion occurs. The perfect ovum is then expelled at once, and the uterus contracts without much hæmorrhage. In other cases the membranes are ruptured, and the small fœtus comes out alone or enveloped in the amnion, or the membranes may be discharged piecemeal, leaving the ovum to escape afterwards. As a general rule, the membranes remain after the expulsion of the fœtus; and the earlier the abortion, the longer the membranes or placenta have a tendency to remain. This is probably owing to the extended adhesion of the ovum to the internal superficies of the uterus, and the feeble power of the uterus to contract on its contents. Sometimes the membranes of an early ovum will remain for weeks, but in such circumstances there is not the same tendency to decomposition and its dangers, as there is in the case of placenta at the full term.

The mechanism of abortion varies considerably, according to the time between conception and the term of natural labour at which the accident happens. No doubt abortion may occur in cases where conception has taken place just before a period, when the motor act of expulsion would probably be limited to the Fallopian tubes, the ovum being carried out of the uterus with the menstrual discharge. In cases occurring in the early months, the canal of the cervix and the os uteri have to be dilated before the ovum can pass, and this process of dilatation occupies a considerable time, and frequently causes much suffering. When the dilatation has occurred, the ovum is expelled by the contractions of the imperfectly-developed uterus. The contractions of the uterus occur periodically, and are accompanied by periodical pains, as in labour at the full term. The nearer the time at which the abortion takes place is to

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 wards. They do, however,
 from loss of blood, convulsions,
 the uterus. They are also liable to
 us and fatal affections which attend the
 state. Tetanus, resembling the traumatic
 in character, has been known to occur after
 marriage, and in rare cases blood has passed
 through the Fallopian tubes into the peritoneum,
 causing death by peritonitis. Abortion occurring
 from small-pox and scarlatina is especially danger-
 ous to the mother. When women abort frequent-
 ly, great damage is done to the general health; a
 profound anæmia is caused; and patients may die
 of secondary diseases arising out of the debility
 induced by the recurrent miscarriages. When the
 whole of the ovum has been expelled, it is rare to
 meet with any profuse post-partum hæmorrhage.
 The uterus is at once so diminished in size as to
 prevent the risk of bleeding. It happens, however,
 that occasionally small portions of the membranes
 are left in utero, and are a source of irritation and
 bleeding for weeks after the loss of the ovum.
 When the entire ovum is extruded, or brought
 away completely in detached portions, the woman
 is at once in a state of ease. A discharge, gen-
 erally similar to the lochia, continues for some days.
 As regards rest and other management, a patient,
 after a severe abortion, should be cared for in the
 same way as a woman who has been delivered at
 the full term—that is, she should be kept in bed,
 and ordered a light unstimulating diet, until she
 has regained her strength. The breasts are some-
 times stiff and painful, but rarely give much
 trouble after an abortion.

We must take cognizance of diseased states of
 the placenta in the treatment and prevention of
 abortion. When the foetus is threatened with
 death because the placenta cannot perform its
 nutritive and respiratory functions, we may, through
 the mother, act upon the placenta, and assist it in
 the performance of its functions. Dr. Power pre-

scribed the inhalation of air containing an in-
 creased quantity of oxygen, or the use of medi-
 cines containing a large proportion of oxygen in a
 loose state of combination, as nitric acid, in cases
 where the child has been lost repeatedly in the
 latter months of pregnancy. Dr. Simpson states
 that he has found chlorate of potash useful in
 cases where the foetal respiration is imperfect.
 Care should be taken in such cases to keep
 the blood of the mother in a healthy state. It is
 evident that the sanitary condition of the foetus
 must mainly depend on the condition of the
 arterial blood of the mother, this being the
 medium in which the embryo respire. It has
 been recommended that, in cases of repeated peri-
 tonitis or cerebral disease in the foetuses of the
 same mother, mercurialization and other means
 should be employed with the view of reaching the
 ovum through the maternal circulation; but, in the
 present state of our knowledge, our means of
 diagnosis in diseases of the foetus are too obscure
 to render therapeutics of much value. In syphilis
 affecting the mother, or when the father is syphili-
 tic, there can be no question of the propriety of
 mild mercurialization as a means of warding off
 the dangers of abortion, regard being had to the
 fact, that the careless use of mercury may itself be
 the cause of abortion. In the prevention of abor-
 tion from fatty degeneration of the placenta, the
 strength of the mother should be supported in
 every way. The chlorate of potash, nitric acid,
 mild preparations of iron, and, above all, fresh air,
 should be recommended. The treatment of fatty
 placenta should be the same as fatty heart, or fatty
 degeneration of any other organ.

The prevention of abortion is an important sub-
 ject. The whole of the treatment of the disorders
 of pregnancy has a direct bearing upon this sub-
 ject. In women who abort from habit, when the
 nervous system is chiefly concerned in the produc-
 tion of the accident, all emotional disturbance and
 reflex sources of irritation should be avoided as far
 as possible. The pregnant woman should not
 suckle, or be subjected to any mammary irritation.
 Mr. Lloyd has related a case in which a small
 tumour having been removed from the breast of a
 pregnant woman, she aborted, and died of metritis.
 Irritation of the dental nerves should be guarded
 against. The rectum should be remembered, not
 merely as a neighbour to the uterus, but as posses-
 sing an excitor surface in reflex relation with the
 uterus. Ovario-uterine and vaginal irritation
 should be soothed, and excitement avoided, par-
 ticularly at the catamenial dates. It is a useful
 point in the Periodoscope I constructed some years
 ago, and some thousands of which have been used
 by the profession, that it points out, at a glance,
 the catamenial dates of any pregnancy. The late
 Dr. Griffin, of Limerick, recommended large doses
 of quinine in the case of women who abort
 repeatedly at the same date of pregnancy. Mr.
 White, of Manchester, recommended cold or tepid
 bathing, with success, as a preventive of abortion.
 Some accoucheurs advise a daily enema of cold
 water, in women of weak, irritable habit. When

the tendency to abort is very strong, nothing is so likely to prolong gestation to the full term as absolute rest in the horizontal position. When all other means fail, an attempt should be made to eradicate the abortive diathesis by a year's marital separation, and a tonic treatment in the meantime.

LECTURE XIII.

DURATION OF PREGNANCY.

GENTLEMEN,—The question of the Duration of Pregnancy, involving, as it does, the Cause of the Coming-on of Labour, is one of the most interesting amongst the yet unsettled problems in Obstetrics. It is impossible to rest satisfied with the pious saying of Avicenna, that "at the appointed time labour comes on by the command of God," and we are impelled to attempt the penetration of a mystery, which has been the subject of numberless theories and speculations, but which has hitherto baffled all attempts at its satisfactory solution. It may be said that at the present time obstetricians and physiologists are pretty nearly divided between two opinions, as to the time of the duration of gestation, and the circumstances which influence its termination. According to one view the uterus is excited to expel its contents by the maturity of the foetus and its membranes. Upon the second hypothesis, the gravid uterus, like the unimpregnated organ, is ruled by the catamenial periodicity, and labour comes at what would have been a catamenial period, had the woman remained unimpregnated. Both these ideas, in a more or less perfect form, are of very ancient date. Harvey, for instance, taught that parturition came on at the tenth menstrual period after conception. Harvey's master, Fabricius, and still earlier authorities, held that labour came on in consequence of the maturity of the foetus. In my work on "Parturition," I have adhered to the former view, and attempted to show that the ovaria are the organs which excite the uterus to the act of parturition. While doing this, I have dwelt upon the maturity of the embryo at the time of labour, and urged it as a manifest instance of the harmony of Nature, that the foetus should be perfectly developed, and the placenta and membranes showing signs of unfitness for their functions, when the ovaria excite the uterus to expel its contents. I shall, however, on the present occasion, state as impartially as I can the facts which support, or tell against, either theory.

The first thing which merits our attention in this inquiry is the statistical tables constructed by those who have kept registers of large numbers of cases. The late Dr. Merriman made a very careful investigation into the duration of pregnancy, which has been quoted by almost all subsequent writers upon the subject. He reckoned from, but without including, the last day of the last catamenial period, and he gives a table of 150 mature births calculated in this manner. Of these,—

5	were delivered in the 37th week.
16	" " 38th "
21	" " 39th "
46	" " 40th "
28	" " 41st "
18	" " 42nd "
11	" " 43rd "

This variation is very considerable, and the question suggests itself—In the case of the fifty-seven women who carried the ovum beyond the fortieth week from the last menstruation, was the gestation protracted beyond the usual time, or was it that conception occurred one, two, or three weeks after the last catamenial appearance? To these questions we shall have to revert hereafter. Dr. Murphy has given a table of 182 cases, in which the results were somewhat different from those obtained by Dr. Merriman. In Dr. Murphy's cases, the numbers delivered in the 40th and 42nd week were equal, twenty-five in each week; while in the 41st week, thirty-two labours occurred. The late Dr. James Reid, in an elaborate essay on the Duration of Human Pregnancy, begun in 1850, and completed in *THE LANCET* in 1853, gives a table of the duration of pregnancy in 500 cases, calculating from the last day of menstruation. Of these,—

23	were delivered in the 37th week.
48	" " 38th "
81	" " 39th "
131	" " 40th "
112	" " 41st "
63	" " 42nd "
28	" " 43rd "
8	" " 44th "
6	" " 45th "

These results prove, as in Dr. Merriman's table, that, calculating from the last day of the last catamenial period, considerable variations in the duration of pregnancy occur. Is there more regularity in cases where the duration of gestation, or the date of the occurrence of labour, is calculated from the time of a single coitus? Before entering upon this topic, it must be premised, that in the case of the catamenia frequent mistakes are made by the most careful women respecting the time of its last appearance. Errors, intentional or unintentional, are still more likely to occur in fixing the time of the coitus which has resulted in impregnation. Many of these cases occur in unmarried women, in whom there is a very constant tendency to declare that the fruitful coitus has been a solitary one. Dr. Reid, in the paper referred to, collects forty-three instances of conception after single coitus, all of them resting upon testimony as credible as can be obtained in these cases.

260	days after single coitus, delivery occurred in	1
263	" " " "	1
264	" " " "	2
265	" " " "	1
266	" " " "	2
270	" " " "	1

Carried over, 8

271 days after single coitus, delivery occurred in	8	If we get two cases of pregnancy in women in whom the catamenia appeared at the same time, the date of parturition may vary within certain limits. The same variation occurs in the cases of two females to whom impregnation occurred at the same time. If we look to the results obtained from the observations made upon comparative gestation, the same variation of the duration of pregnancy, as calculated from the date of intercourse, is found; and in animals the utmost accuracy as regards dates can be procured. Baron Tessier found that the average duration of pregnancy in 160 cows was nine months and ten days; but of this number 68 went beyond the 280 days, in 20 gestation lasted 300 days, and in 5 instances it was protracted to 305 days. The late Earl Spencer had the duration of gestation accurately noted in 764 cows. Pregnancy lasted on the average 285 days. In 8 cases only was this period exceeded by more than 12 days, and only one went 18 days beyond this time. These results differ somewhat from those of Tessier, but there are no grounds for questioning the accuracy of the observations in either case. Other observers have found the same variations in the gestation of the cow. Similar variations have been observed in the gestation of mares, and in elephants; and in the smaller animals, where gestation lasts a shorter time, notable variations in the time of coming on of parturition are found to occur. The last hypothesis respecting the variable duration of pregnancy is that advanced by Dr. Clay, of Manchester, who argues from cases which have occurred in his own practice, and the facts known respecting the duration of gestation in animals, that the younger the parent the shorter is the term of gestation. Dr. Clay believes that the ages of both parents influence the duration of pregnancy; but dwells particularly upon the influence of the mother.
272 " " "	8	
273 " " "	1	
274 " " "	7	
275 " " "	2	
276 " " "	5	
278 " " "	1	
280 " " "	3	
283 " " "	2	
284 " " "	1	
286 " " "	1	
287 " " "	2	
291 " " "	1	
293 " " "	2	
296 " " "	1	
300 " " "	1	
	—	
	43	

Thus it will be seen from this table that the average duration of gestation, reckoning from a single coitus, is about 275 days. But in this mode of calculating the term of gestation, variations quite as great as those which occur in calculating from the catamenial periods are met with. Dr. Reid, who wrote with a desire to show that the duration of pregnancy should be calculated from the time of impregnation, rather than from the last menstruation, was obliged to conclude as follows:—"If we allow of a range from two to six days after menstruation as elapsing probably before conception takes place, it will then appear that about the thirty-ninth week after impregnation is more probably the ordinary duration of pregnancy, and this will coincide with the results of the table taken from cases of single coitus." This means that we can calculate as well from the date of the last catamenia, as from the date of conception, but that in one case we must reckon thirty-nine, in the other forty weeks. Upon whichever basis we make the calculation, it is proved that the duration of gestation varies considerably, within certain limits, and we must look to other evidence than that derivable from such tables, to show the real cause of the termination of pregnancy, and the occurrence of parturition. In animals, where the date of coitus can be ascertained with greater accuracy than in the human female, the same variations in the time between impregnation and parturition in different females of the same species are found to exist. Thus the chief facts deduced from these statistical data are, that, in a large proportion of cases, gestation terminates at a certain time, within the limits of a few days, and that this time bears pretty nearly the same relation to the catamenial dates, as to the dates of fruitful coition. Dr. Reid's is the largest collection of cases of conception from single coitus which has been made, and the result yields the 275th day as the average time for the occurrence of labour. In the calculations from the catamenial dates, Dr. Reid's cases give the same result as those of Dr. Merriman, the average time of the coming on of labour being the 40th week from the termination of the catamenia.

There is a class of cases not hitherto noticed, by which the duration of pregnancy from the time of coitus may be ascertained with considerable certainty. In 1851, Mr. Coleman, of Surbiton, drew my attention to the following circumstance:—Two ladies, patients of his, were married on the same day, and both were delivered within ten hours of each other. The marriage took place on the 7th of May, 1850, and one was confined on the afternoon of February 8th, 1851, and the other at two A.M. on the 9th, or 276 days from the date of marriage. Both had menstruated a few days before marriage. I have collected a good many cases of this kind, and they show that in the majority of those in whom labour occurs within the forty-first or forty-second week from marriage, the deliveries occur before, rather than after, the 280th day from marriage. It is usual for marriages to take place shortly after a catamenial period, and the inference is, that in these cases impregnation must have occurred within a few days after marriage. Such cases tend to confirm the table of Dr. Reid, in which the average duration of labour was 275 days from the date of coitus. They do not, however, bear distinctly upon the determining cause of labour, and probably no mere statistics

will ever settle the question. I now proceed to state the arguments in favour of the maturity of the ovum as the exciting cause of parturition.

Those who consider the maturity of the foetus to be the cause of labour, point to the periodicity observed in the growth or flowering of plants, the separation of ripe fruit from the stalk, the leaf from the stem, the regularity with which the young of birds are hatched from the shell, the regular appearance and shedding of the teeth, and similar phenomena of growth and development, as favouring the idea that the foetus separates from the womb, and excites the phenomena of parturition, in consequence of an inherent periodicity occurring as part of the development of the embryo. Dr. Carpenter refers to the placenta as the organ upon which the contraction of the uterus depends. He draws an argument in favour of this opinion from the phenomena of superfetation, in which one child is detached from the uterus, a second remaining undetached, apparently in consequence of the immaturity of the placenta. Dr. Simpson has advanced the opinion, that "the loosening or decadence of membranes and placenta from the interior of the uterus constitutes the determining cause of parturition; and that this loosening or decadence is itself the result of the effete degeneration of the structure of the decidua towards the full term of pregnancy." In the observations of Lord Spencer, it was found that gestation with males had a tendency to continue a few days longer than gestation with females. There is a popular belief that this occurs in the case of males in the human subject. In our fishing towns, where the dates of the absence of the husband are known, it is said that when gestation is prolonged beyond the usual term, a boy is expected, and that this expectation is generally fulfilled. Lord Spencer also found that cows in calf by a particular bull had a tendency to go a few days longer than those impregnated by other bulls in the herd. Those who oppose the view that the catamenial dates rule the duration of pregnancy, ask why parturition should occur at the tenth rather than at the eleventh, or any other menstrual period? But this may be replied to by other questions,—Why, for instance, should the catamenial period, as the rule, consist of twenty-eight days? or why should puberty come on at a particular age? The only answer is, the fact, that these particular periodicities do occur. In animals the periodicities of oestruation are little known, particularly in the wild state, but it is asserted that the larger animals do not oestrate sufficiently often to render it possible that in their case the duration of gestation can be a multiple of an oestral period.

There is one point which has already been adverted to in connexion with menstruation, and which is supposed to militate against the ovarian theory of the cause of labour. As the rule, we have seen that the menstrual periodicity recurs every twenty-eight days; but in some women the period returns a day or two earlier or later than this with considerable regularity. Others are regular every fortnight, or every three weeks; or the

period returns only every five or six weeks. What multiple of the catamenial periodicity is observed in such cases? I have carefully noted all the cases I have met with of this kind, and I find that in such women the duration of pregnancy is more irregular than usual. The future collection of such cases will be very valuable in elucidating the true cause of labour, far more so than cases in which the last date of menstruation and the occurrence of a single coitus are recorded. It is said by some who oppose the ovarian theory, that if the ovarian or catamenial periodicity ruled the coming on of labour, the date of parturition should always be exactly 280 days from the last menstruation. This is hardly a valid objection, inasmuch as in the most regular females, the catamenia often appear a few days before, or a few days after, the expected time, yet no one on this account refuses to accept the ordinary monthly periodicity as the rule amongst women. The irregularities in the duration of gestation are certainly not greater than the irregularities observed in menstruation.

The argument in favour of the ovarian influence, as a determining cause of labour, and as regulating the duration of pregnancy, has now to be stated. It is allowed by all observers, that labour has a tendency to occur, and does occur, in a great proportion of cases, in the fortieth week from the last menstruation; and it is equally allowed, that impregnation has the tendency to happen just after the catamenial period. It is also made out by the record of a considerable number of cases in which a single coitus occurred, that gestation lasts, on an average, about 275 days from the actual date of impregnation. These data make the average duration of pregnancy approach 280 days from the last catamenial period, so that the time between the last catamenial period and the occurrence of parturition is, on the average, very nearly a multiple of a single catamenial period. This is a curious coincidence, even if it were proved that the uterine function of parturition was quite independent of the ovarian influence.

But we know that the uterus performs some of its most important functions under the influence and control of the ovaries. It is allowed, even by those who deny the influence of the ovaria upon parturition, that the catamenial function is ruled by the ovaria, that the ovarian phenomena may occur without menstruation, but that menstruation never occurs without the influence of the ovaria. It is admitted by almost, I think I may say, all practical accoucheurs, that the influence of the ovaria are felt during pregnancy, that women feel uneasiness at the catamenial dates, and are more liable to abort at these times than at others. This is particularly the case with women who have suffered from dysmenorrhoea previously to pregnancy. In certain cases of extra-uterine gestation, as, for instance, in abdominal pregnancy, the development of the foetus has frequently gone on to the usual limit of pregnancy, when violent pains, as of labour, and contractions of the enlarged uterus, have come on. Dr. Ramsbotham observes on this point: "It is a curious circumstance in

the history of these cases, that if the child should live till the term of gestation is completed, as soon as that time has expired, the uterus takes on itself expulsive action, which is attended with pain similar to the throes of labour; and, during these pains, the deciduous membrane is expelled from the cavity with more or less sanguineous discharge." Cases have been not unfrequently met with in which the ovum has been blighted in the middle part of pregnancy, and in which the decidua and chorion have been diseased; but the mother has carried the diseased ovum for a considerable time, or to the natural limit of gestation, when the molar or degenerated ovum has been expelled. There is another class of cases in which twin gestation is proceeding; but one ovum dies, yet the uterus is not excited to contract, but the dead and living ovum go on to the full term. In cases of superfetation, when one living child has been born, and birth has been given to the second some time subsequently to that of the first, I have found that there is a tendency to some multiple of the catamenial period in the interval between the birth of the two children. Dr. Fleetwood Churchill has given an account of the three most remarkable cases of superfetation on record; and I proceed to an analysis of these cases, quoting the words of Dr. Churchill:—

"In the '*Recueil de la Société d'Emulation*,' there is the case of M. A. Bigaud, of Strasburgh, aged thirty-seven, who was delivered of a living child on the 30th of April. The lochia and milk were soon suppressed. On the 17th of September of the same year (i. e. about four months and a half after the first delivery) she brought forth a second apparently mature and healthy child." The first labour occurred on the last day of April, so that we have the thirty-one days of May, thirty days of June, thirty-one days each of July and August, and seventeen days in September, in all, one hundred and forty days from the first to the second birth, or exactly five catamenial periods, $5 \times 28 = 140$. In a case related by Desgranges, of Lyons, to continue the account of Dr. Churchill, "the woman was delivered on the 20th of January, 1780, of a seven-months' child, and on July 6th, 1780, five months and sixteen days after the former birth, she gave birth to a second, which had apparently reached its full term." In this case we have eleven days in January, twenty-nine in February (it being leap-year), thirty-one in March, thirty in April, thirty-one in May, thirty in June, and six in July, between the two births, in all one hundred and sixty-eight days, or precisely six catamenial periods, $6 \times 28 = 168$. The third case noted by Dr. Churchill is as follows, from the account of the late Dr. Maton, in the fourth volume of the "*Transactions of the College of Physicians*":—"Mrs. T—, an Italian lady, but married to an Englishman, was delivered of a male child at Palermo, November 12th, 1807. On the 2nd of February, 1808, not quite three calendar months after the preceding accouchement, she was delivered of a second male infant. Dr. Maton assured Dr. Paris that 'both the

children were born perfect;' the first therefore could not have been a six-months' child." If we include the day on which the first child was born, the time between the births amounts to eighty-three days, or within one day of three periods of twenty-eight days. In these cases it is impossible not to recognise the close adherence to the ovarian periodicity, and it is difficult to imagine that this could be a mere coincidence. All such facts militate against the supposition that the irritation of the uterus by the mature fœtus and its membranes induces labour; and support the view that it is excited by extra-uterine and ovarian influence. There is also another class of facts which tells against the hypothesis that labour depends solely upon the maturity of the fœtus and the placenta and membranes, and as a consequence in favour of the ovarian periodicity. Instances are frequently met with in which the placenta becomes prematurely mature and caducous, or affected with degeneration, and the child dies in utero shortly before birth. It is well known that in certain women this happens many times in succession, the placenta becoming ripe, and positively unfit for the performance of its functions, without exciting the uterus to expel its contents. It is difficult or impossible to account for such cases on the supposition that the mature ovum excites the uterus to the efforts of labour. It is not that there is any special adhesion of the placenta and membranes to the uterus in these cases; for if the fœtus lives in a feeble condition up to the time of labour, it separates from the uterus with the first pains, and causes the death of the child. On the other hand, labour comes on just as regularly in cases in which the placenta has adhered so firmly to the uterus, in consequence of inflammation, as to require mechanical detachment after labour.

In 1850 I performed some experiments, with a view to determine the possibility of exciting the uterus to contraction by irritating the ovaria. In these experiments I had the valuable aid of the late Mr. Henry Smith, who assisted Dr. Marshall Hall in his great course of experimental inquiry. We found that in gravid rabbits chloroformed, and with the abdomen laid open, irritation of the ovaria by galvanism, a heated needle, or pinching with the forceps, excited distinct contractions of the uterus and vagina. In the rabbit at the middle period of gestation, after a few contractions of the parturient canal had been excited artificially by irritation of the ovaria, the intermittent contractions of ordinary parturition went on until the fœtuses were expelled, artificial parturition being thus excited by ovarian irritation. Berthold experimented upon animals during gestation by extirpating the ovaria, and found that this operation invariably led to abortion. I have heard that Dr. Simpson a few years ago performed some experiments with a different result from those of Berthold, but I believe these experiments have not been published. In my work already referred to, I have shown that in many of the lower animals, ovulation and oestruation are going on at the time of parturition, and that many of them admit the male,

and conceive again on the same day that the uterus has been emptied.

I have thus advanced, and I trust impartially, the arguments and facts for and against the theory of the ovarian cause of labour, which I believe I was the first to propound. I have for many years taught that the ovaria, acting at or near the tenth period from the time of the ovulation which has ended in impregnation, excite in the uterus those changes which lead to the expulsion of the ovum. I have also compared the show which accompanies parturition, and the lochial discharge which follows it, to the menstrual discharge. It has appeared to me, that the changes in the uterine portion of the membranes are similar to the changes which occur in menstruation, and that the contractions of the uterus resemble those more imperfect contractions which occur in many women at the catamenial periods, and which we do not hesitate to refer to the ovaria. I believe there are some facts which do not admit of explanation upon the supposition that the cause of labour depends on the maturity of the ovum; as, for instance, the occurrence of uterine contractions at the end of gestation in cases of extra-uterine foetation. I believe, on the contrary, that the facts which appear to militate against the ovarian theory, most of them admit of explanation.

In a practical point of view, we may consider that the average duration of pregnancy is about 280 days from the date of the last catamenia, or about 274 or 275 days from the time of coitus, when this can be ascertained. As the date of fruitful intercourse can only be known in rare and exceptional cases, we are compelled to date from the last catamenia,—the point which, from time immemorial, has been the foundation of the calculations of women and their attendants. I constructed the PERIODOSCOPE upon the data that conception generally occurs a few days after the completion of a catamenial period, and that labour may be expected on some day of what would have been the tenth period, had pregnancy not intervened. I have now for some years used this instrument in practice, and found the results generally correct. It is at the same time a mode of calculation and a diagram of pregnancy.

Those who calculate from the last menstruation and those who date from conception, may equally use the periodoscope. The cases in which the date of fruitful coitus can be known are rare, and for practical purposes the few days succeeding the last menstruation may be taken as the date of that event. Five days after the last menstrual date are marked in the following diagram as the time within which conception generally takes place:—

FIG. 59.

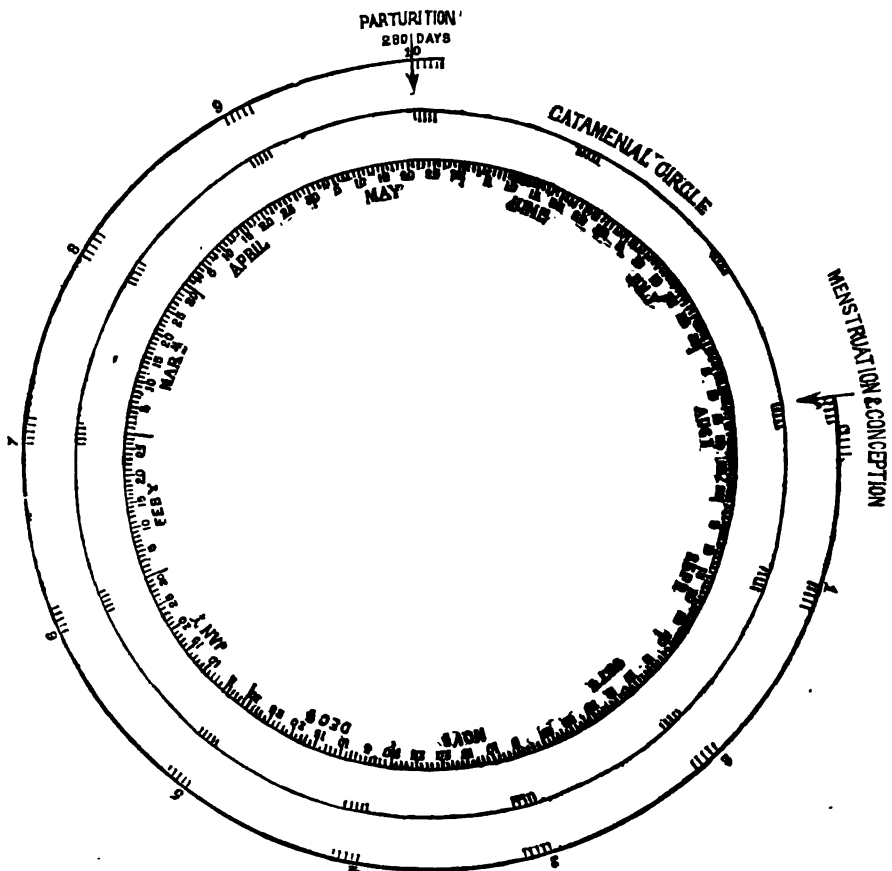


Diagram of THE PERIODOSCOPE.

LECTURE XIV.

MOLAR PREGNANCY.—BLIGHTED OVA.

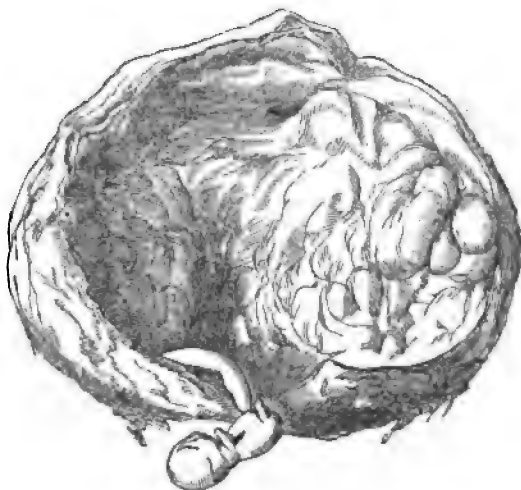
GENTLEMEN,—Certain matters are occasionally discharged from the virgin or unimpregnated female, which it becomes necessary to distinguish from the results of fecundation. These consist of masses of squamous epithelium from the vagina, fibrinous collections from the cavity of the uterus, and the membranous product expelled in some cases of dysmenorrhœa. There can be no difficulty in deciding on the flakes or tubular pieces of squamous epithelium, exfoliated from the vagina. The fibrinous masses expelled from the uterus resemble an almond in size and shape, being to some extent casts of the uterus; they are smooth externally, and possess a very imperfect central cavity. The dysmenorrhœal product consists of the uterine mucous membrane, exfoliated in a more or less perfect form. When entire, it has the shape of the cavity of the body of the uterus, is rough externally, and smooth within, having a distinct triangular cavity, with two openings above, and one below, at the sites of the Fallopian tubes and canal of the cervix uteri. There are, of course, no traces of funis, membrane, or fœtus. Examined microscopically, the squamous epithelial masses consist of quantities of epithelial scales; the fibrinous masses are composed of filaments of fibroid material arranged in bands, and myriads of granular corpuscles, similar to exudation corpuscles; in the true dysmenorrhœal membrane, the convoluted utricular glands are found with their openings on the smooth internal lining of the cavity, and the cæcal extremities of the glands upon the rough or external surface. The older writers included polypi and fibrous tumours in the list of moles; but the above constitute what are now considered False or Spurious Moles.

The Genuine Moles, which are the result of impregnation, are of various kinds, consisting of different forms of degeneration of the membranes of the ovum. We can readily distinguish the varieties of mole depending on the carneous or fleshy, the hydatiginous, and the fatty and other degenerations, of the membranes. None of these cases can occur without conception. Formerly great confusion prevailed upon this subject. Many authors believed that fleshy moles might occur in nuns and others presumed to be virgins, without the occurrence of intercourse. Percy believed that hydatids were independent animals, and that their production was compatible with the purest chastity. Denman thought they sometimes originated in the uterus as independent formations, and Sir Charles Clark inclined to the opinion that uterine hydatids might exist apart from pregnancy. Cases are recorded, in which uterine hydatids have been retained long beyond the usual period of gestation. Madame Boivin, Baudelocque, Ryan, Desormeaux, and Velpeau, are quoted by Dr. Montgomery, as being in favour of the belief that this form of degenerated ovum may be retained for many months or even years after the ordinary date of labour. I am not aware that any recent case of this kind has been observed. The tendency of all modern re-

search, however, has been to demonstrate that the genuine mole cannot occur except as the result of impregnation, and as the degeneration of a true ovum. In some instances of twin conception, one fœtus has disappeared under the influence of hydatiginous degeneration, while the other has continued healthy up to the full term. It is related of the celebrated Beclard, that he was born under these circumstances.

When an ovum is rendered unfit for continuing the development of the embryo in the early weeks of gestation, by the effusion of blood between the membranes, or into the substance of the chorion, or by other disease of the membranes, it may not be expelled at the time, but remain in utero, and undergo the changes which constitute carneous degeneration; or there may be a partial separation of the ovum from the uterus, followed by an attempt to repair the mischief by the reunion of the separated portions. The fibrin of the effused blood becomes pale and semi-organized, and a perverted nutrition of the membranes goes on. The diseased membranes increase in bulk, but become dense, and quite unfitted for the development of the fœtus, which remains of the same bulk as when the effusion or separation commenced, or it may become atrophied. This may continue for three or four months, until at length the degenerated ovum is expelled, consisting of the nest-like membranes and a small embryo of two or three weeks' growth, or in some cases the fœtus may have disappeared, and traces only of the umbilical cord remain. Such are the main points connected with carneous degeneration of the ovum. It has often been pointed out that such cases are of considerable importance in a medico-legal point of view. A husband, for instance, may have believed his wife pregnant, and after his absence from home for several months she may abort on his return, of a fœtus so minute as to give rise to a suspicion of her fidelity, unless such a matter could be explained by the death, retention, and degeneration of the ovum.

FIG. 60.



Blighted Ovum with Carneous Degeneration of the Membranes

not very obvious, beyond mechanical injuries, and the great afflux of blood to the organ, which occurs during pregnancy. Congestion and its results are probably common causes of abortion, though it is by no means certain that in all cases of abortion in which effused blood is found in the placenta, or the membranes, the effusion has been the cause of abortion. In many cases, the effusion occurs, without doubt, during the progress of abortion, from other causes. The treatment of placentitis and placental congestion consists in local or general blood-letting, according to the amount of pain and the constitution of the patient, counter-irritation over the uterus, and other means for equalizing the circulation. Dr. Simpson is of opinion, that many of the cases of repeated abortion in the same person depend upon placental congestion. The placenta is liable to other diseases, which have a tendency to repetition, such as calcareous degeneration, tubercular deposits, and atrophy or hypertrophy. In the case of a syphilitic ovum leading to abortion, the placenta is very commonly diseased.

FIG. 57.



An apoplectic ovum: blood being effused in masses under the fetal surface of the membranes.

When from any cause the foetus dies, the circulation in the foetal portion of the placenta is suspended; this in turn affects the circulation on the maternal side; the ovum becomes a foreign body, and abortion generally takes place. Sometimes, however, the placenta is still nourished imperfectly, and the dead ovum is retained in utero for a variable time. The foetus is liable to many diseases which may tend to the death of the ovum, such as inflammation of its serous membranes, dropsies of the serous cavities, or the amnion, disease of the liver or kidneys, tubercular diseases, diseases of the umbilical cord, knots upon the cord, twisting of the cord tightly round the neck of the child, and various other affections which are sufficient to destroy its vitality. I have seen a case, in which

the head was nearly amputated by the twisting of the cord round the neck. Probably a diseased ovum excites the uterus to expulsive contractions in many cases, before actual death of the ovum has occurred.

FIG. 58.



Ovum showing morbid enlargement of the umbilical cord.

LECTURE XII.

TREATMENT OF ABORTION.

GENTLEMEN,—The first symptoms of abortion are a sanguineous discharge, and the occurrence of lumbar, hypogastric, and coxal pain. The pains which precede abortion are very much like those which precede or accompany a catamenial period. Some women abort, however, without having suffered much, if any, pain. It frequently happens that a distinct rigor, or frequent shiverings, usher in abortion. There is sometimes diarrhoea, and, still oftener, an irritable condition of the bladder. Coldness of the breast and abdomen is sometimes complained of, and there is often a cessation of sickness, where this has been troublesome. On being called to a case of supposed abortion, an examination should always be proposed, and made, if possible. It may happen that in cases of supposed abortion there may be no pregnancy at all. Great care should be taken, on introducing the finger, not to give pain or use any violence, lest the tendency to expulsion should be increased. In threatened abortion, the os and cervix uteri will generally be found open to some extent, and the body of the uterus may be felt in front of the os, lower in the pelvis than natural, and hard, as if firmly contracted. When abortion is actively proceeding, the ovum, or part of the ovum, may sometimes be felt high up in the cervical canal, or it may be partly extruded from the os uteri.

The first consideration, in a case in which the symptoms of threatened abortion have occurred, is whether or not the ovum can be preserved. With this end in view, all irritations of a reflex kind should be avoided, or removed, as much as possible. General, local, or vascular excitement should be

treated by a soothing regimen and diet. It is rare that cases are met with requiring general blood-letting; but leeching is sometimes useful in cases of uterine plethora, particularly when the symptoms occur at what would, in the absence of pregnancy, have been a catamenial date. The leeches should be applied to the inside of the thighs, or the perinæum. When nervous excitement predominates, a full opiate is of great service. Opiates, in full doses, are also especially called for when there is intermittent uterine pain, or the continued pain of the back and lower part of the body similar to painful menstruation. Dr. Fleetwood Churchill has given the cannabis Indica with good effect as an anodyne, and with a view to its restraining sanguineous discharge. In the earliest abortions, astringents are very valuable, the loss of blood in such cases very much resembling menorrhagia. The acetate of lead, in combination with opium, the mineral acids, the oxide of silver, alum, gallic acid, are the best remedies of this kind. If the discharge is profuse, iced drinks should be given. Otherwise, the beverages of the patient should be cool, without being absolutely cold, in order to avoid uterine contraction. In the treatment of abortion, it must always be borne in mind, that in diet and medicine any agents which excite contraction of the uterus may arrest hæmorrhage for the moment, but with danger of exciting further separation of the ovum. We must be careful, therefore, not to excite any powerful uterine action. The local application of cold to the vulva, and the introduction of sponge, or pieces of lint dipped in water, into the vagina, is very useful, within certain limits; but it must be remembered that excessive cold excites uterine contractions, and so, also, does the sponge or linen plug, if it should be large enough to irritate the vagina mechanically. Perhaps the most important of all the means at our disposal for the relief of abortion is rest in the horizontal position. The patient should be kept in bed in a cool apartment, lightly covered with clothes, as long as any coloured discharge continues, and for some days afterwards she should be kept upon a couch, and not allowed to assume the upright position or to walk. When the uterus is in the irritable and congested condition which accompanies abortion, the standing posture, or considerable movement of any kind, greatly adds to the probabilities of abortion. The mind of the patient should be kept as quiet as possible, and all exciting or alarming intelligence withheld from her. The bowels should be kept open, if necessary, with the mildest laxatives. I prefer the senna confection, with a little bitartrate of potash, as an aperient. Castor oil, as I believe, irritates the uterus and mammae, and should not be given. When the threatening of abortion has occurred at a catamenial date, every precaution should be taken, as the next monthly period comes round, in the way of avoiding irritation, and preserving quiet of body and mind. Every pregnant woman should be told to take note of the catamenial dates throughout pregnancy, and observe greater care than usual at these times, particularly if she has been the subject of abortion. The attempts to prevent abortion

should be carried out perseveringly, as it sometimes happens that women suffer from the symptoms of abortion for a considerable time, slight sanguineous discharges lasting for weeks, and yet, with continual care, they go on to the full term. It sometimes happens that the bleeding is very profuse, and the os uteri so closed that the finger could not possibly be introduced into the uterus. All the more powerful astringents may have been tried in vain. In such cases the vagina must be plugged firmly with lint or sponge. This arrests the bleeding almost invariably, and tends to promote coagulation at the mouths of the bleeding vessels. If, however, it is necessary to continue the plugging for any length of time, the uterus becomes excited by the mechanical irritation, and throws off its contents. Sometimes the loss of blood is so great as to require the free administration of brandy, ammonia, and other stimulants. As abortions frequently spread over a considerable time, every care should be taken to support the strength of the patient. In abortions at the fourth or fifth month, the hæmorrhage may be so profuse and sudden as to be alarming from the first. This is particularly the case in abortions occurring about the time of the cessation of the catamenia. In such cases, if the hæmorrhage cannot at once be arrested by astringents, cold, and the tampon, the membranes should be ruptured with a view to stop the hæmorrhage, and to excite expulsive action of the uterus.

When an abortion is threatened, the accoucheur should order all the discharges to be saved for his examination. Every clot and every portion of solid matter should be carefully inspected. Otherwise it may happen that the patient or her nurse shall tell you she has aborted when she has not done so, coagula having been mistaken for the ovum. Or it may occur that the ovum having passed unnoticed, and slight or profuse hæmorrhage continuing, as it sometimes does, for a considerable time, the accoucheur is puzzled by expecting an abortion long after it has been accomplished. In connexion with these points, it must be borne in mind that cases occur in which the ovum appears to be dissolved, and slowly discharged with sanguineous matters, just as the decidua is discharged in the lochia after parturition. A delicate ovum of a few weeks may disappear within the uterus, as occurs in certain cases of molar gestation, and the membranes may be broken down and discharged as detritus. Either of these three cases may prove very embarrassing to the practitioner. Whatever care may be observed, cases will occasionally occur in which women who have passed two or three menstrual periods, and exhibited the signs of early pregnancy, will be seized with the symptoms of abortion, and suffer from a sanguineous discharge for a considerable time, without passing any detectible portions of an ovum. After this the patients may menstruate regularly, and it becomes exceedingly difficult, or impossible, to decide whether they have aborted or suffered from a temporary suppression only.

The indications which should make us abandon all hope or intention of saving the ovum are, sudden losses of blood to such an extent as to imperil

the life of the mother, or such a continuous drain as seriously to endanger her health; it being also certain, or nearly so, that in such cases the ovum is diseased or already dead. If, on examination, we can feel the ovum at the os uteri, or in the cervix uteri within reach of the finger, we may be certain that its expulsion is only a question of time. As a rule, there is little hope of saving the ovum after the rupture of the membranes and the discharge of the liquor amnii. I have, however, seen at least one case in which gestation went on to the full term after the discharge of the liquor amnii at the fifth month. Fœtid discharges, particularly in early abortions, are a pretty sure sign of the death of the ovum.

When all expectation of saving the ovum has been abandoned, means must be taken to obtain its removal from the uterus. If the bag of the early ovum can be felt with the finger in the cervix uteri, it can generally, by careful manipulation, be separated from the uterus, and got away by the finger alone. Sometimes it is necessary to introduce the hand into the vagina, in order to get the finger into the uterus; and if the hæmorrhage is alarming, the case urgent, and the os uteri sufficiently dilated to admit the finger, there need be no hesitation in adopting this measure. I have never seen any ill effects arise from such an introduction of the hand and finger. When the os uteri is undilated, and the hæmorrhage is great, Dr. Simpson recommends the introduction of one of his sponge pessaries, with a view to the mechanical dilatation of the os and cervix. The only precaution necessary in such cases, as in all instances in which sponge is used in the vagina, is not to allow the sponge to remain long enough to become fœtid. The ergot of rye and the cannabis Indica may be given for their oxytotoxic effects in cases where it is thought inadvisable to remove the ovum, or portions of the ovum, mechanically. Galvanism has been suggested by Dr. Robert Barnes, and from what I have seen of its action in cases of intra-uterine polypi, I have no doubt it would contribute to expel an ovum in a difficult case of abortion. We may turn the reflex connexion between the rectum and the uterus to great account in the treatment of abortion when there is no hope of saving the ovum. A drastic cathartic enema will often complete the expulsion of an ovum in the most rapid manner. Various instruments have been proposed and recommended for the mechanical extraction of a partially-detached ovum. There is, however, no instrument equal to one or two fingers when they can be introduced. The last invention of this kind is an instrument proposed by Dr. Fleetwood Churchill, on the principle of the familiar apparatus for getting a cork from the inside of a bottle. In France, a small forceps, somewhat resembling the lithotomy forceps, is used for the same purpose. Dewees invented a wire crotchet for the extraction of the ovum. It must be said, however, that, with all instrumental devices for the removal of the embryo, there is danger of injuring the uterus, and with the hand in the vagina, a case can hardly

occur in which the embryo, membranes, or portions of the latter, when retained, cannot be detached and brought away by the finger. Time and patience are sometimes necessary for this manipulation, but I have never known it fail.

I have seen cases where it was necessary to give chloroform before introducing the hand. In a case I saw with Mr. Ballard, of a retained placenta in an abortion at the fifth or sixth month, no other means would have enabled us to extract the remains of the ovum. The ordinary modes of procuring its removal had been tried in vain. The patient was in such a state of frenzied excitement that any introduction of the hand would have been impossible while she remained conscious. The cord had broken and the placenta had been retained thirty-six hours, and there was no choice but that of leaving the placenta or giving chloroform. There was no difficulty in introducing the hand, but the placenta had to be peeled from the surface of the uterus. The dangers of retained placenta are well known, and in a case of difficulty I should not hesitate to advise the use of chloroform in similar cases.

The condition in which the ovum is expelled varies greatly in different cases. The most favourable way in which an early abortion can occur is where the detachment of the entire ovum takes place before the act of expulsion occurs. The perfect ovum is then expelled at once, and the uterus contracts without much hæmorrhage. In other cases the membranes are ruptured, and the small fœtus comes out alone or enveloped in the amnion, or the membranes may be discharged piecemeal, leaving the ovum to escape afterwards. As a general rule, the membranes remain after the expulsion of the fœtus; and the earlier the abortion, the longer the membranes or placenta have a tendency to remain. This is probably owing to the extended adhesion of the ovum to the internal superficies of the uterus, and the feeble power of the uterus to contract on its contents. Sometimes the membranes of an early ovum will remain for weeks, but in such circumstances there is not the same tendency to decomposition and its dangers, as there is in the case of placenta at the full term.

The mechanism of abortion varies considerably, according to the time between conception and the term of natural labour at which the accident happens. No doubt abortion may occur in cases where conception has taken place just before a period, when the motor act of expulsion would probably be limited to the Fallopian tubes, the ovum being carried out of the uterus with the menstrual discharge. In cases occurring in the early months, the canal of the cervix and the os uteri have to be dilated before the ovum can pass, and this process of dilatation occupies a considerable time, and frequently causes much suffering. When the dilatation has occurred, the ovum is expelled by the contractions of the imperfectly-developed uterus. The contractions of the uterus occur periodically, and are accompanied by periodical pains, as in labour at the full term. The nearer the time at which the abortion takes place is to

the time of labour, the more closely do the pains and the motor action and mechanism resemble those of natural parturition. In abortions occurring after the formation of the placenta, the tendency, as regards the expulsion of the ovum, is to imitate labour at the full term. The cervix uteri is slowly dilated, the membranes ruptured, and the foetus expelled, to be followed, at a longer or shorter interval, by the membranes and placenta. In the early months, the difficulty occurs, not in the passage of the foetus through the pelvis, but in the dilatation of the undeveloped cervical canal. As gestation advances, and the cervix uteri becomes developed, the difficulty of passing through the cervix becomes diminished, while that of passing through the pelvis is increased. When the ovum is small, the contractions of the uterus are chiefly or solely concerned in its expulsion; but when it is large enough to distend the vagina, the abdominal and respiratory efforts are called into play.

Usually, an abortion is not attended by any great danger. Women recover rapidly from the loss of an ovum, and there is a remarkable aptitude for conception afterwards. They do, however, sometimes perish from loss of blood, convulsions, or rupture of the uterus. They are also liable to the dangerous and fatal affections which attend the puerperal state. Tetanus, resembling the traumatic disease in character, has been known to occur after miscarriage, and in rare cases blood has passed through the Fallopian tubes into the peritoneum, causing death by peritonitis. Abortion occurring from small-pox and scarlatina is especially dangerous to the mother. When women abort frequently, great damage is done to the general health; a profound anæmia is caused; and patients may die of secondary diseases arising out of the debility induced by the recurrent miscarriages. When the whole of the ovum has been expelled, it is rare to meet with any profuse post-partum hæmorrhage. The uterus is at once so diminished in size as to prevent the risk of bleeding. It happens, however, that occasionally small portions of the membranes are left in utero, and are a source of irritation and bleeding for weeks after the loss of the ovum. When the entire ovum is extruded, or brought away completely in detached portions, the woman is at once in a state of ease. A discharge, generally similar to the lochia, continues for some days. As regards rest and other management, a patient, after a severe abortion, should be cared for in the same way as a woman who has been delivered at the full term—that is, she should be kept in bed, and ordered a light unstimulating diet, until she has regained her strength. The breasts are sometimes stiff and painful, but rarely give much trouble after an abortion.

We must take cognizance of diseased states of the placenta in the treatment and prevention of abortion. When the foetus is threatened with death because the placenta cannot perform its nutritive and respiratory functions, we may, through the mother, act upon the placenta, and assist it in the performance of its functions. Dr. Power pre-

scribed the inhalation of air containing an increased quantity of oxygen, or the use of medicines containing a large proportion of oxygen in a loose state of combination, as nitric acid, in cases where the child has been lost repeatedly in the latter months of pregnancy. Dr. Simpson states that he has found chlorate of potash useful in cases where the foetal respiration is imperfect. Every care should be taken in such cases to keep the blood of the mother in a healthy state. It is evident that the sanitary condition of the foetus must mainly depend on the condition of the arterial blood of the mother, this being the medium in which the embryo respire. It has been recommended that, in cases of repeated peritonitis or cerebral disease in the foetuses of the same mother, mercurialization and other means should be employed with the view of reaching the ovum through the maternal circulation; but, in the present state of our knowledge, our means of diagnosis in diseases of the foetus are too obscure to render therapeutics of much value. In syphilis affecting the mother, or when the father is syphilitic, there can be no question of the propriety of mild mercurialization as a means of warding off the dangers of abortion, regard being had to the fact, that the careless use of mercury may itself be the cause of abortion. In the prevention of abortion from fatty degeneration of the placenta, the strength of the mother should be supported in every way. The chlorate of potash, nitric acid, mild preparations of iron, and, above all, fresh air, should be recommended. The treatment of fatty placenta should be the same as fatty heart, or fatty degeneration of any other organ.

The prevention of abortion is an important subject. The whole of the treatment of the disorders of pregnancy has a direct bearing upon this subject. In women who abort from habit, when the nervous system is chiefly concerned in the production of the accident, all emotional disturbance and reflex sources of irritation should be avoided as far as possible. The pregnant woman should not suckle, or be subjected to any mammary irritation. Mr. Lloyd has related a case in which a small tumour having been removed from the breast of a pregnant woman, she aborted, and died of metritis. Irritation of the dental nerves should be guarded against. The rectum should be remembered, not merely as a neighbour to the uterus, but as possessing an excitor surface in reflex relation with the uterus. Ovario-uterine and vaginal irritation should be soothed, and excitement avoided, particularly at the catamenial dates. It is a useful point in the Periodoscope I constructed some years ago, and some thousands of which have been used by the profession, that it points out, at a glance, the catamenial dates of any pregnancy. The late Dr. Griffin, of Limerick, recommended large doses of quinine in the case of women who abort repeatedly at the same date of pregnancy. Mr. White, of Manchester, recommended cold or tepid bathing, with success, as a preventive of abortion. Some accoucheurs advise a daily enema of cold water, in women of weak, irritable habit. When

drugs and preparations which are comparatively harmless in round or cylindrical bottles, and those which are poisonous in square or angular bottles, so that the mere touch of the dispenser will be enough to inform him when he is treading on dangerous ground, and be sure to inculcate caution, or to warn him of peril in the case of mistake.

If the Tincture of Aconite is to be employed in medicine, it is a pity that so powerful a preparation should not be used of one uniform strength. Three tinctures are in use in this country; two are made according to the formulæ of the London and Dublin Colleges, and a third according to a process recommended by Dr. Fleming. These vary somewhat in strength, since to two pints of rectified spirit the London Pharmacopœia prescribes fifteen ounces of the dried root, Dr. Fleming sixteen and two-thirds, and the Dublin Pharmacopœia twenty ounces. The largest dose commonly given is—of the London Tincture, ten minims, (which is rather dangerous,) and of Dr. Fleming's, five minims. The tincture of the Paris codex is much weaker than any used in England—a fact which gave rise to the fatal prescription of twenty-five minims, which cost Mr. Brown his life.

My advice would be to discontinue altogether the use of Tincture of Aconite. It has been ascertained by Mr. Herapath that the amount of the active principle, Aconitina, varies from a quarter of a grain in an ounce of the fresh root to about three-quarters of a grain, from which it follows that the tincture, however carefully prepared, may be at least three times as strong at one time as it is at another. This, in my opinion, renders it altogether an unsafe preparation. I have therefore recommended the employment instead of a weak solution of the pure Alkaloid, aconitina, of one certain strength and known power, containing, for instance, one grain in ten drachms—i. e. $\frac{1}{10}$ in each minim of the solution. This might be given with advantage in all the cases in which the tincture of aconite has been recommended by Störck, Lombard, Fleming, and other physicians.

The second class of cases of aconite root poisoning includes those in which this root has been eaten by mistake as an article of food.

In nearly all the instances of this recorded during the last few years, the singular error has been committed of mistaking the root of aconite for that of the common *horseradish*, and thus scraping it and eating it along with our national dish, roast beef. I have before me brief notes of four instances of this calamitous mistake, which have occurred in this country during the last twenty years. The aconite being a plant so commonly grown in our gardens—one which possesses, to some extent, the dangerous property of spreading in the soil to a distance from the spot where it was first planted; having an annual stem, which dies away in the autumn, and a perennial root of a notable size, which may be taken for horseradish by an unskilful person—all are circumstances which have combined to cause these accidents.

CASE 1.—(Reported by Dr. Pereira.)—On February 5th, 1837, Mr. Prescott, of the City-road,

London, dug up in his garden some roots which he supposed to be those of horse-radish. They were about the size of small walnuts, not so thick, but longer. They were washed, scraped, mixed with some vinegar, and served at dinner with roast beef. Three roots were used. About two-thirds were consumed by himself, his wife, and child of five years. Much the greatest part was eaten by Mr. Prescott, who remarked that the taste was unusually mild. Three-quarters of an hour after dinner he was seized with burning, followed by numbness, of the lips, mouth, and throat. Violent vomiting succeeded, then sweating. His eyes are described as "glaring." [Does not this look as if the pupils must have been dilated? The fact is not mentioned, as the account was obtained from his wife.] His lips were blue. He trembled, but was not palsied, neither was he insensible. He was observed very frequently to put his hand to his throat. All treatment was vain; four hours after dinner he was dead. His wife, who had taken much less, was affected with similar symptoms, with the addition of slight general palsy. She recovered. The child also was but slightly affected. Both were observed to be frequently putting their hands to their throat.

CASE 2.—Similar to the last. Recorded very briefly in *The Times* of Nov. 4th, 1842. The patient died.

CASE 3.—The account was printed in the *Bristol Mercury*. It occurred on October 30th, 1853, to Mr. J. Russell, of Bristol. The same unfortunate mistake was here made by a servant girl. She thought the "horseradish" was very dead, and had no strength in it. Mr. Russell ate at dinner "just as much as would go on the point of a table-knife." (Mr. Herapath has calculated that the quantity thus indicated could not have exceeded thirty-five grains in weight, or have contained more than one-twentieth of a grain of pure aconitina.) The symptoms were just as usual. A deadness, described as spreading down one side, is the most remarkable of them; his pupils, too, were dilated. His pulse having gone, he died.

CASE 4.—The most recent, and perhaps the most remarkable case on our list, is that sudden tragedy at Dingwall, in Ross-shire, the details of which must be fresh in all our memories. I will repeat them with but little alteration, as they were given in *The Times* of January 28th, 1856.

On the evening of the Tuesday preceding, Provost M'Iver, of Dingwall, had a party to dinner, consisting of the Rev. J. Gordon, Roman-catholic priest at Beaully, Rev. Angus M'Kenzie, Roman-catholic priest at Eakdale, Mr. Lewis M'Kenzie, proprietor of the estate of Findon Black Isle, Mr. John M'Donald, of Torriden, the Provost himself, and the ladies members of his family.

After dinner, Mr. Gordon complained of a parched mouth, took a draught of water, and retired from the room. Mr. M'Donald also felt ill, complaining likewise of a parched and burning sensation in the mouth and throat; he also took a draught of water, and went out into the open air, walking about smartly, to drive off the affection.

The other priest was then taken ill, next Mr. McKenzie of Findon, and lastly the Provost himself, the symptoms in all being the same. Medical attendance came quickly. The priests were found vomiting and suffering dreadfully. Nothing could relieve their agony. Shortly they died. (The symptoms, as collected piecemeal from various papers, seem all to have been those of aconite poisoning.) Mr. McKenzie of Findon sank next. The Provost and Mr. McDonald, feeling sure that they had all taken some deadly poison, kept walking about briskly, and at length mastered their symptoms. (This exercise, however, they would not have been able to take, had they eaten as much of the poison as the other three.) The ladies were not even taken ill. A message having been sent to Edinburgh, to the Lord Advocate, the sheriff was quickly in attendance, bringing with him Drs. Christison and McLagan. But long before this the mystery had been cleared up. Roast beef was the *pièce de résistance* at the table. It seems that horseradish is seldom eaten in Scotland; but, unhappily, on this occasion the host was desirous of displaying at his table this English delicacy. The aconite grew in the garden, close to the horseradish. It was in the winter time, so that its leaves were not seen. The manservant dug up one of its roots by mistake, and the cook used it both as garnishing and sauce for the roast beef. The provost, who carved, ate but sparingly; he was the last to be taken ill, and he eventually recovered. The other gentlemen were helped in turn, and were afterwards seized with the fatal symptoms in the order in which they had been helped. The ladies partook of mutton, and so escaped.

What renders these accidents the more remarkable is, that there is really very little resemblance between the root of horseradish and that of aconite, as may be seen by comparing them. *Horseradish root*—long, fusiform, simple, gradually tapering, with a light-yellow epidermis,—internally white, tough, of a peculiar pungent taste, not changing colour on exposure until dry. *Aconite root*—taper-shaped, usually swollen or napiform above, tapering abruptly, giving off many fibres, having a darkish-brown epidermis,—white within, more spongy, softer, and not so tough as horseradish, the scrapings tending to a pinkish colour when exposed for some time; the taste somewhat acrid, but not to be called pungent. The root when one or two years old is simple; when older, offshoots spring from the sides; these becoming developed, the root at length presents a clustered or fasciculate appearance.

I conceive that it is only the simple or annual root with which such a mistake could be made. The root also is dug up in winter, when horseradish is in season, and the leaves of both have died down. Few would make a mistake between the growing monkshood and the great dock-like leaves of the horseradish in summer.

To the cases just related, I may add a short account of another which occurred some time ago in my own experience—an example of poisoning

by aconite root, which fortunately did not prove fatal:—

CASE 5.—A gentleman of my acquaintance being at breakfast one morning with his brother, both partook of coffee. (It was afterwards remembered that the coffee-strainer, which had not been used for some time, had been formerly employed in a chemical laboratory to strain some decoction of aconite roots, it had been washed and put aside, but not burned, as it should have been.) My friend tells me, that shortly after breakfast he set out as usual on an accustomed walk, but had not proceeded far when he noticed a peculiar tingling sensation about his tongue, which shortly extended backwards into the throat. His tongue felt too large for his mouth; his lips and face tingled; and soon a creeping sensation extended down both arms, and next along the thighs also. He then felt altogether ill, with giddiness in the head, swimming before the eyes, great weakness, and almost inability to stand. He noticed a peculiar sensation of stiffness about the neck and back, a symptom which outlasted all the others. His head felt as if it was in a vice, and yet so heavy that he thought he could hardly support it; he felt continually as if he wanted to draw a deep breath; he did so with much effort, but with relief to the giddiness. He was not sick. After a time his symptoms gradually abated. His case is interesting,—as we have here, given by an intelligent and competent person, the very characteristic train of symptoms caused by an over-dose of aconite. The brother was affected very much in the same manner, but lay down on the sofa, expressing himself as unable to stir a limb. He, too, got over it. The coffee-strainer was burnt; but my friend, who had previously suffered from dyspepsia and aggravated hypochondriasis, assures me that for some weeks after this occurrence he was in better health and spirits than he had ever been before.

I regret that I am obliged to curtail the remarks which I had intended to make on these cases of poisoning. We are already aware that the action of aconite depends upon the presence in it of a very powerful agent, the alkaloid aconitina. This is not possessed of any very characteristic chemical properties, but its medicinal properties are marked enough. A solution applied to the skin causes numbness. One-tenth of a grain taken into the stomach would certainly kill a man. It is by far the most powerful of all known poisons. It is of use in medicine chiefly as an external agent in the treatment of neuralgia, the pain of which it rapidly relieves. I busied myself, some years ago, in discovering a good and economical mode of obtaining this alkaloid, and succeeded in inventing one which has proved successful in the hands of all who have since tried it. By this process, Mr. Herapath finds that dried aconite root grown in England contains from twelve to thirty-six grains of aconitina in one pound. The smaller amount is yielded by roots collected at the commencement of the season, and containing a large proportion of starch. Those dug up after flowering are of lower specific gravity, and contain most aconitina

by weight. In the root of *Aconitum ferox*, imported from India, (this is the *Bikh* of the Hindoos, a terrible poison,) I have found that there is, on the average, about three times as much as in the English root—that is, fifty-five grains in one pound of the heavy roots; ninety grains in one pound of those gathered late in the season.

There are two ways in which we may with great certainty recognise a case of Aconite poisoning—

1. By noting the symptoms.

2. By chemical means.

1. The symptoms are very characteristic. The tingling and numbness, spreading from the tongue and mouth; the uneasiness in the neck; the giddiness, followed by vomiting; the palsy of the limbs, followed by failure of the pulse and the breathing; the absence of coma as a marked symptom,—all characterize Aconitina,—a poison which is a general sedative to the nervous system, acting first on the nerves of common sensation; then on the cerebrum; thirdly, on the vagus nerve, as supplied to the stomach; fourthly, on the same nerve, as connected with the heart and lungs, and, at the same time, on the system of motor nerves. The particulars of the action of aconitina on various animals I have elsewhere enumerated.

I may notice that many discrepant statements have been made as to the action of aconite. Boerhaave uses the words, "*vim peccantem causticam et suffocantem habet.*" I agree to the second term, but not to the first. Haller and Störck, who both attribute acridity to the plant, probably described a variety of *A. paniculatum*, and *A. Lycocotum*, both of which grow in central Europe, and are more acrid than our native species. It is curious that *A. paniculatum*, when growing in Scotland, has been found to be nearly inert; and the shoots of *A. Lycocotum*, poisonous in Switzerland, are in Sweden eaten with salad.

Dr. Christison states that hemlock causes death by paralysing the muscles, and so arresting the respiration; but that aconite has no action on the muscular system. Yet it certainly produces palsy, though only as a secondary effect.

Dr. Pereira and others state that it contracts the pupil, like opium. To this, my own observations of its effects upon animals are directly opposed. I find that it dilates the pupil, in the same manner, though not in the same degree, as belladonna. Geiger, Hesse, Herapath, and others, make the same statement. Perhaps the effect on the pupil may vary somewhat, and it is also possible that it may act differently upon man and animals. It is certain that in animals it commonly produces delirium or convulsions, as also salivation, all of which are rare in the human subject. On this subject of the state of the pupil further observations seem to be required.

The first proof of Aconite poisoning is derived from the symptoms; the second proof is a chemical one. Although there are no distinct chemical tests by which we can recognise Aconitina, it would be comparatively easy, in cases of poisoning, to obtain from the contents of the stomach and the matter vomited some portion of the poisonous prin-

ciple. My ether-process for obtaining Aconitina might be modified for this purpose; or the principle obtained by boiling spirit upon the extract left on evaporating a clear acid solution of the contents of the stomach; or the animal-charcoal process pursued, by which Dr. Taylor could extract half a grain of strychnia from a gallon of beer. The alkaloid, or the spirituous extract, should then be tried upon animals. If $\frac{1}{100}$ th of a grain be obtained, it will be enough. $\frac{1}{100}$ th of a grain will poison a mouse, with characteristic symptoms; $\frac{1}{100}$ th, a small bird. $\frac{1}{100}$ th of a grain causes tingling and numbness of the tip of the tongue; $\frac{1}{100}$ th, dissolved in spirit and rubbed into the skin, causes loss of feeling, lasting for some time. By these means, which are as sure in their way as chemical tests, we may determine the presence of aconitina, and corroborate the evidence derived from our remarks upon the symptoms.

Treatment.—As soon as the poisoning is suspected, a large quantity of animal charcoal should be given. I find that aconitina is quickly taken up, and obstinately retained by this agent. A zinc emetic may follow. If given first, this does harm, by assisting absorption. Brandy and ammonia should then be freely administered, and, if we have rendered help in time, the patient may perhaps be saved.

Guildford-street, Russell-square.

ON AN INSTANCE OF FEIGNED DISEASE.

By H. W. LIVETT, M.D., &c., Wells, Somerset.

On the 2nd of February, 1856, I was requested to attend a woman, aged forty, single, who was reported to have been ill for twelve years, and under the care of various medical men the greater part of the time. On my visit I was informed by the patient and her relatives, that she had originally cancerous disease of the breast, and that after suffering a variety of complaints, she had for the past two years been afflicted with dropsy, with retention, and indeed suppression of urine; for she had only passed urine at intervals of *six, eight, or ten weeks*, and then by means of the catheter. She was likewise subject to frequent attacks of fainting and convulsions, one of which, with very violent contortions of the face, came on during my visit. Her abdomen appeared to project enormously, but in a peculiar manner, protruding abruptly from the epigastric region for at least fifteen inches. She had her face tied up, to prevent dislocation of the jaw during the convulsions, an event which, she said, had actually occurred on two or three occasions. She spoke in a whisper, having had loss of voice for some time. At her desire I introduced the catheter, but *the bladder contained no urine*. When performing the operation, I had an opportunity of ascertaining, much to my surprise, that there was no enlargement of the abdomen from the pubis up to the umbilicus. I was stopped in any further exploration by her clothes, she being dressed at the time. I should here remark that she was always sitting up and dressed when visited; indeed she said she could not lie down.

I considered this to be a remarkable case, certain-

ly not dropsy, but hysteria, complicated, perhaps, with liver disease; still, as the tongue was clean, and the pulse really natural, I confess that the enormous enlargement of the upper part of the abdomen, and the long-continued suppression of urine, puzzled me, and although I considered there was exaggeration, I did not suspect imposture. It was not convenient for me to examine the tumour on that occasion.

On the 5th I saw her again, and again introduced the catheter, and drew off upwards of two quarts of urine, (natural in appearance, free from any ammoniacal odour,) the first, as she assured me, she had passed for ten weeks. Neither on this, nor on several subsequent visits, could I see the tumour divested of its clothing: it was not convenient, or the convulsions occurred, and prevented the examination.

My suspicions of imposition were gradually strengthened, and on the 19th I told her that I must inspect the tumour before I left the house. She had a very violent fit, and at its termination declared she could not possibly allow me to see the tumour then, but that to-morrow I should examine it if I pleased, and to this arrangement I was obliged to concede. I noticed that as she became excited at my perseverance, her voice became strong and loud.

The next day she sent to inform me that an immense discharge from the bowels had occurred during the night, and that she supposed this was caused by the bursting of the tumour, for it had greatly decreased. This discharge, I found upon inquiry, had been *unfortunately* thrown away. I was now convinced of the nature of the case, and was not therefore astonished to find, on examination of the part the next day, that not only was there no tumour to be seen, but not the least trace of its existence left, in the wrinkling of the skin or any other appearance whatever. There was, instead, an efflorescence on the skin of the epigastrium, marvellously like the effects of a mustard poultice.

While I was considering the best means for exposing the imposture, of which I was now abundantly satisfied, further proof was put into my power by herself. She sent to say that she had had a violent fit of vomiting—that she had brought up a quantity of blood, with substances like rotten flesh, which she supposed was part of the tumour. This so-called evacuation was preserved for my inspection; and upon a careful examination I found the substances (which were contained in about a quart of water tinged with blood) to consist of *shreds* of fresh meat, some membrane, part of a vein or nerve, and a piece of an artery of the size in diameter of a common tobacco-pipe; none of which appeared to have ever been at all subjected to digestion. These substances were examined microscopically, through the kindness of Mr. Bowman of King's College, by Professor Beale, and the following are extracts from the report:—"The cylindrical piece consists of about half an inch of the trunk of an artery, about the size of a common quill, cut off sharply at each end. . . . Upon the

surface are entangled several fibres from a blue cotton cloth and a few blanket-hairs, and a little epithelium from the fauces. . . Other parts consist of nerves, probably from the sympathetic. None of the portions have been subjected to any cooking."

In this case, then, the tumour and the vomited substances and the loss of voice were certainly deception. I believe the convulsions to have been voluntary, and the whole of her illness exaggerated or simulated for the purpose of exciting compassion, and its more substantial effects in the shape of money, food, and clothing, from her richer neighbours; in this attempt, I may add, she was eminently successful, the humane of all classes having been for a long period contributing towards some mitigation of her sufferings.

Her illness might possibly have been in the commencement (and may be even now) to some extent real; and finding herself an object of interest, she was induced as she became better to feign that which was before true; and in order perhaps to stimulate declining sympathy, and replenish a failing exchequer, was gradually incited, as we have seen, to over-act her part. I should have mentioned previously, that she lived with a brother who carried on the trade of a butcher; thus the substances said to be vomited were readily obtainable by her.

Cases of malingering in the army and navy are more or less frequent; but it seldom falls to the lot of the civil practitioner to attend and decide upon such cases as that now detailed; and even when he is himself convinced of the deception, it requires some degree of moral courage (unless his proof be as clear as sunshine) to denounce as an impostor one who has doubtless managed to create sympathizing and powerful friends in the little world in which he lives. Still, his course is plain; and it is equally his duty to expose the malingerer as to aid the real sufferer, and thus to direct the stream of public charity in the right direction. The practitioner may at least learn one lesson from this case; never to be satisfied with a superficial examination of any ailment which comes under his treatment, nor to be guided too much by details given him by the patient or her friends of the disease and its symptoms, however long-continued it may have been.

I may add, that upon inquiring of Dr. Purnell, of this city, who had attended her for a part of her long illness, that the affection of her breast was a most anomalous one, certainly not cancer; that he had never reduced her jaw when dislocated, as she reported; and that he always considered her "fits" as in a great degree assumed. He had never, himself, heard of the tumour, but his assistant had attended her for dropsy for some time.

April, 1854.

ON A SELF-ADJUSTING DOUBLE STETHOSCOPE.

By JAMES E. POLLOCK, M.D.,

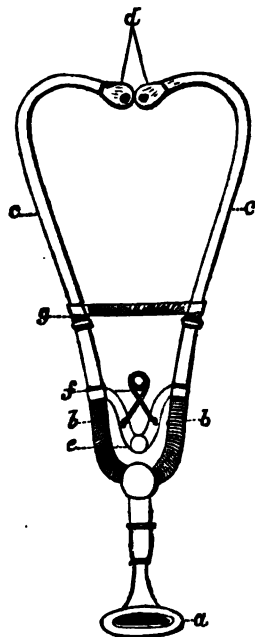
ASSISTANT-PHYSICIAN TO THE HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST.

HAVING been much interested in experiments

made to test the conducting powers of a double self-adjusting stethoscope, of American invention, which I have used at the Hospital for Consumption, I conceive that a short description of the instrument may prove of interest to the profession in this country. Since the first discovery of auscultation, and its general use, many attempts have been made to obtain an instrument which shall combine simplicity of construction with a high conducting power, and various modifications of the ordinary stethoscope are familiar to all of us. To those most accustomed to the investigation of chest disease, the instrument is but of slight importance, and an accurate estimate of the chest sounds can no doubt be easily made with a simple cylinder, such as Laennec used, or by any of the ebony, cedar, deal, or mahogany tubes which abound in the shops. It is truly to the tact of the observer, and not to the medium applied to the chest, that we owe precision in auscultation, and provided that the instrument be simple, the bore true, the ear-piece easily adjusted to the ear, and the bell so expanded and flattened as to oppose a convenient surface of contact to the chest, we may leave the material of the single instrument to individual taste or fancy. Some will use a solid instrument with precision, whilst, strangely enough, others maintain that the air in the tube is the conducting medium, but on this point I will only stop to remark, that metal, deal, box, ivory, cedar, &c., solid and perforated, may be used with nearly equal facility, and that, having acquired by practice the "hearing ear," the observer of chest disease may be content to leave refinements of construction to the instrument maker.

The increase of sound to be gained by using both ears at once, while all loud external noise is excluded, is, however, a means of obtaining new information on the exploration of the chest, which has excited the attention of several careful auscultators. Many years ago, Dr. Williams used a double metal tube with two flat ear-pieces,* and adapted to the bell of an ordinary stethoscope, which, except for its inconvenience, would fully answer the above indications, and give great increase of conducting power. M. Landouzy of Paris, in 1850, constructed an instrument having a number of gum-elastic tubes, by means of which several persons could listen at the same time. In 1851, Dr. N. B. Marsh, of Cincinnati, patented a stethoscope with two gum-elastics tubes and a membrane over its objective end, which required both hands to keep it in position. More lately, in this country, Dr. Leared has made a double instrument with gutta-percha tubes.

In January, 1855, Dr. Camman, of New York, had constructed with great care a double self-adjusting instrument, of which the engraving is taken from the *New York Medical Times* for that month. Dr. Cotlson, of Castle Donington, Leicestershire, having been favoured by Dr. Cam-



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| a. Objective end. | e. Hinge joint. |
| b. Two gum-elastic tubes. | f. Spiral spring. |
| c. Two metallic tubes. | g. Elastic movable spring. |
| d. Two Ivory knobs at aural extremities. | |

man with one of his instruments, the former gentleman most kindly placed it at my disposal for experimental purposes. The instrument is fourteen inches long; the tubes are of German silver, with a double curve towards the aural extremities terminating in ivory knobs, which when applied should rest closely against the external openings of the ears. The bore is two lines and a half in diameter, and smooth throughout. Dr. Camman dwells much on the accuracy of the curves, and conceives that the sounds conveyed are thereby increased; but it is doubtful if this be the case. Without these curves the instrument would not be capable of self-adjustment. The elastic band or spring retains the aural ends in contact with the ears, and leaves the hands free.

It will be observed, then, that we have here a very perfect instrument, which conducts the chest sounds to both ears at once, and excludes all ordinary external sounds. The results of many experiments with it prove that it is a great intensifier of sound, acting to the ear the part which a powerful lens performs to the eye. All sounds are magnified many times, and some which were inaudible by the ordinary instrument are revealed to the ear. The healthy respiratory murmur heard through it is a loud blowing, almost like the entrance of air into a smooth cavity, as heard through the single stethoscope. In intensifying, it of course alters the character of chest sounds, which, generally speaking, are lowered in tone by it. Again, as many magnifying glasses of great power are bad definers, so the ear is apt to be confused by the loudness of the sounds heard, and some practice is therefore necessary to ensure accuracy in estimating the modifications of healthy or morbid respiration.

* This and various ingenious modifications of the ordinary stethoscope, constructed for experimental purposes, were kindly shown me by Dr. Williams, on the occasion of his trying the powers of the American instrument now described.

The dry sounds are more accurately conducted than the moist; a pure friction, as in the early stage of pleuritis or pericarditis, is rendered very intense; and the dry crepitus occasionally heard in the early stages of phthisis is greatly developed. The same remark is applicable to the wavy or interrupted inspiration. The healthy expiratory murmur, which (as heard in the single stethoscope) is in duration, when compared with the inspiration, as 1 to 5, becomes prolonged when conducted by this instrument; and, without a knowledge of this fact, the observer would therefore argue some solidification of the lung as the cause of this increased audibility. This observation will at once illustrate the power of the instrument as a conductor, and the special study of it which is necessary before drawing any inference from its use. The voice sounds are greatly intensified, an ordinary pectoriloquy becoming almost startling from its loudness. The heart's sounds are magnified, but more precision in their conduction is to be gained by the use of the ordinary stethoscope. Morbid cardiac sounds are never difficult to hear, though their origin may be occasionally obscure; it is therefore plain that a magnifier of sounds would not assist the diagnosis. Certain low and indistinct murmurs, in aneurisms within the chest, might possibly be revealed by its use, which would be otherwise unheard.

Slight differences in the percussion note are rendered very manifest by applying this instrument to the ears, and holding the bell near the part of the chest percussed, which may be done either by the observer or another person, the self-adjusting power of the stethoscope leaving the hands free. It is obvious that the foetal heart sounds, and the (so called) "bruit placentaire," in pregnancy, may be heard at a very early period, and that in doubtful cases of fracture a crepitus, undistinguishable by the single stethoscope, would most likely be detected. In applying it to the chest, it is absolutely necessary to remove the dress, as the slightest friction masks all other sounds; its perfect adjustment, so that no air may enter in the edge of the bell, is also requisite.

It is plain, from the above remarks, that some practice is necessary to enable us to profit by the increased powers of this stethoscope, as all the sounds are exaggerated, altered in tone, and therefore unlike those which we at present recognise by the aid of the old instrument. It is also evident that it is not likely to displace the latter in daily use, the sounds in which, duly recognised, are sufficiently accurate, and above all, so universally known, as, in the judgment of skilful observers, to lead to a satisfactory diagnosis. Nay, further, it is little likely that advances in our knowledge of chest affections are to come through improvements in mechanical devices for measuring or rendering manifest physical alterations in the respiratory organs; but there are various physiological and experimental uses to which such an instrument as this may be applied, and it may also prove a valuable assistance in the investigation of disease. I may add that Mr. Coxeter, of Grafton-street, has,

under my directions, constructed with great care some of these instruments.

Chandos-street, Cavendish-square, April, 1866.

ON ANTIMONIAL POISONING.

By B. W. RICHARDSON, M.D.

At the present moment, when the various questions connected with the effects of antimony on the body are being seriously discussed by the profession, it may not be out of place for me to lay before the readers of *THE LANCET* the following cases in which all the symptoms of antimonial poisoning were strikingly exhibited:—

Some years ago, in a country practice, I was called to see a delicate, strumous man, suffering from pneumonia, (in the first stage,) and accompanied with pleuritis on the right side. The stethoscopic indications of these local mischiefs were well marked; there was intense pain in the chest, great difficulty in inspiration, and the general symptoms of inflammatory fever. I thought it advisable to bleed, tied up an arm, and opened a vein. The veins however, being small, and the circulation, though quick, feeble, I could not extract more than two ounces of blood, which afforded no relief. On returning home I prescribed a pill of calomel and opium, and a mixture containing a free dose of tartar emetic—viz. one-third of a grain, which was to be taken every four hours. About six hours later a messenger came hastily to beg me to go to the patient, as he was thought to be dying from the effects of the first dose of the mixture. I started immediately; but having to ride full four miles to the man's house, I did not see him until three hours after the dose had been taken. The history of the attendants was, that about half an hour after the dose had been administered the patient suddenly became restless, cold, and faint; that he then vomited, and soon afterwards was violently purged, and that these symptoms had continued without cessation. I found symptoms myself just such as described. For the time the pain in the chest was gone, and the breathing was free, but the vomiting, the purging, and the prostration were extreme. There was little pulse; the surface was cold; the legs were cramped. The case was strictly analogous with one of Asiatic cholera, but the cause, plainly enough, was an overdose of tartar emetic. I administered a full opiate, and threw in brandy freely, waited three or four hours, and left the patient, to my great relief, with full signs of reaction. He ultimately recovered.

On reaching home again, and on making inquiry, it turned out that the dispenser of the mixture had, in a careless hurry, dropped the antimony into the bottle after filling with water. The substance was thus not freely dissolved, and some of it possibly adhered to the neck of the bottle, rendering it probable that the greater part of that which was prescribed for nine doses—viz. three grains—was taken at once.

Here, then, was a case, in which a dose of tartar emetic, not usually considered as poisonous, produced nearly fatal symptoms. A few such cases of

poisoning have been collected by Dr. Christison; but, in all, the dose taken was much greater, though the symptoms were not more severe, except in one instance where forty grains caused death. Moreover, the case I have related was one in which acute inflammatory symptoms were present, and in which antimony in free doses is, as a general rule, well tolerated. Laennec sometimes gave from two to three grains for a dose in similar cases, without any mischievous results.

A stout, active, well-built man asked me to prescribe for him for a cold, requesting me at the same time to be cautious if I intended to order him an antimonial, as he always suffered severely from the effects of that substance. I thought a diaphoretic was required, and ordered fifteen minims of antimony wine to be taken at bed-time. There was no mistake in the dose here, for I saw it dispensed, and knew the wine to be of proper strength. The dose was taken, and from its results I lost caste with that patient for a long time. I admit the symptoms were very severe, and such as no medical practitioner would have expected from so minute a dose. The nausea was incessant for many hours, and the prostration so great as to render the patient unable to leave his room for three or four days. There was no purging, but there was abdominal pain and griping, faintness and general exhaustion.

In instance these cases simply to show that to produce symptoms exceedingly dangerous, it is not always necessary that the doses of antimony administered should be absolutely poisonous—in the common acceptance of the term, a poisonous dose; indeed, I think that a moderate dose, say one-sixth of a grain, repeated many times, may in some cases induce ultimately more serious depression than a large dose administered at once, since in the latter case the emetic effect causes the expulsion of the poison at one vomit, and leaves the system free from after effects.

In regard to the action of antimony on the bowels, when given in small and repeated doses, it has always appeared to me that this effect, when it appears, is generally owing to the absence of the diaphoresis set up usually by this medicine. At all events, I think I have seen purgation follow, in patients under antimony, when the function of the skin has been checked by any accidental cause.

The question, of the elimination of antimony from the body, which has been so opportunely and powerfully opened for discussion in the pages of *THE LANCET*, is one demanding a prolonged and rigid inquiry. With every respect for Dr. Taylor as our leading medical jurist, I think that most practitioners will hesitate in regard to his opinion as to the periods of time in which this substance is eliminated. As yet we have on this point nothing but analogy for a guide, and analogy is a dangerous umpire in scientific difficulties. Still, antimony, as a fixed substance, cannot differ very much from mercury or iodine, both of which quit the body very slowly.

Certainly, to answer the question about the elimination of antimony at this moment, and in a definite manner, is impossible. Consider the diffi-

culties of the subject. In the first place, who knows anything about the manner in which antimony is excreted, further than the bare fact that it is thrown off in the urine? The inference is fair that it is excreted also by the skin and the bowels, but what amount of proof is there that such is the fact? The inference is also fair, that in a patient whose assimilative and excretory powers are reduced, the elimination is much slower than in a case where the reverse obtains; but even this is *sub judice*.

Another great question is—Does the presence of antimony, in some form or other, on the surface of the intestinal canal—i. e. mixed with the mucous secretion of that surface—give direct and conclusive evidence that the drug has recently arrived there by the mechanical act of having been recently swallowed? In the absence of experiment proving this position, it is open to grave doubts. We know that antimony injected into a vein, or even placed under the skin by inoculation, will give rise to purging and vomiting. In such an experiment, is antimony present in the excreted matters? If it is, then, in the same case, antimony might even be found in the stomach, though it had not been introduced into it at all by the mouth; and further, if such should prove to be the fact, it becomes a second point of inquiry, whether antimony may not be taken in by the stomach, go the round of the circulation, and be again thrown into the alimentary canal, for the purpose of being excreted?

I place these queries (some of which I am at the present time endeavouring to solve by experiment) before the profession, not from any special regard to the Rugeley case, but because they open a field of physiological research which ought no longer to remain unexplored. They affect every practitioner and every patient. Here, in this tartar emetic, is a drug which possibly, in London alone, is prescribed to some five or ten thousand per week—I had almost said per day—and yet we who prescribe it so freely do not know how or when it is disposed of afterwards.

Hinde-street, Manchester, 1856.

REPORT OF A CASE OF CAULIFLOWER EXCRESCENCE OF THE OS UTERI, TREATED BY EXCISION.

By ROBERT MACLIMONT, M.D., &c.

MARY ANN W—, married, aged thirty-one, mother of four children, the youngest of whom is twelve months old, applied at the Hospital for Women, on the 14th of August, 1855. In the temporary absence of my friend, Dr. Tanner, physician to the hospital, she was seen by me. Her history is as follows:—

During childhood her health was good; she menstruated at the age of fourteen, and continued regular until her marriage, at twenty-four. She became pregnant shortly afterwards, and parturition took place without the occurrence of anything out of the common. She subsequently gave birth to two other children, while in the enjoyment of perfect health, but shortly before becoming pregnant with her fourth and last child, she began to

notice that a clear, viscid, and inodorous discharge escaped per vaginam: this was not attended with any pain or abnormal sensation whatever, her general health continued good, and she followed her usual avocations. During her pregnancy the discharge continued steadily to increase, being always augmented by any effort or extra exertion on her part. She still remained free from pain, but her general health became impaired, she was sensible of a diminution of her strength, and it was remarked by her friends that she was rapidly losing flesh and colour. She gave birth to her child at the full period, without anything occurring in the delivery to awaken suspicion either in her own mind or that of her medical attendant. She suckled her child till about a month ago. The catamenia have since appeared, but the watery discharge has now greatly increased, and is mixed with blood from time to time, especially after any exertion.

Before seeking advice at the Hospital for Women, the patient had been examined by a medical man, who told her she was labouring under some serious disease of the uterus, the nature of which, however, he was not prepared to state. The woman said that her mother was still living, but that four maternal aunts had died of cancer, one of them after the removal of a diseased breast; she could not inform me as to the seat of the disease in the other three.

On making a vaginal examination, my index-finger came in contact with a fungous mass, encircling the os, and involving both lips of the uterus. This struck me at the time as resembling the head of a mushroom, and was, as nearly as I could guess, about three inches in circumference. The head-like expansion of this growth completely filled up the upper part of the vagina, and was attached to the lips of the uterus by a broad base, which, however, did not extend up the cervix more than perhaps a quarter of an inch. The surface of the tumour had a lobulated feel, firm, but not at all hard. The patient did not complain of any pain from the examination, but the discharge, which I had previously satisfied myself was very abundant, limpid, and of a very faint odour, was now mixed with blood in considerable quantities. On introducing the speculum, the mass presented a granulated surface, and was of a red raspberry colour. On injecting some cold water through the instrument, the bleeding from the superficial vessels was checked, but the secretion of the above-mentioned watery discharge went on actively, and appeared to be transuded from the surface of the tumour. This discharge strongly resembled glycerine, was structureless, except when mixed with blood-corpuscles, coagulated by heat—in short, presented all the characters of serum.

I had no hesitation in pronouncing this case to be the so-called "cauliflower excrescence" of the os uteri, and my diagnosis was most fully confirmed by Dr. Tanner, who, on his return to town, examined the patient at the hospital. The woman consented to submit to any operation likely to benefit her, and it was agreed that the only chance of saving her life was to amputate the cervix uteri,

and for this purpose she became an in-patient on the 16th of August.

Preparatory to the operation, the patient was put on a diet of strong beef-tea, with two ounces of port wine daily.

On the 20th, Dr. Tanner, assisted by Mr. Scott and myself, proceeded to remove the diseased mass, the patient having been put under the influence of chloroform, and placed in the ordinary position for lithotomy. By means of a pair of hooked forceps, the tumour was brought pretty low down in the vagina, but not sufficiently so to extrude the mass beyond the external os; no amount of justifiable force could effect this, and the incisions were consequently made by the sense of touch only, from above downwards, the whole of the diseased mass and sound cervical tissue, to the extent of two or three lines, being removed by a few sweeps of the bistoury. The bleeding was not considerable, but to guard against any hæmorrhage that might arise, the whole of the vagina was tightly plugged with cotton wool, previously soaked in a strong infusion of matico. The patient was removed to her bed, and had two grains of opium, to be followed up by one grain every four hours. She was also ordered strong beef-tea, ice, and a liberal allowance of port wine.

On the second day after operation, the plug was removed, and no hæmorrhage followed. The opium was now ordered to be given every eight hours, beef-tea and wine as before, with the addition of a mutton chop.

On the fourth day, the opium was discontinued, and the bowels opened by a small dose of castor oil. About a week after the operation, the patient was examined per speculum, and the potassa fusa freely applied to the excised surface, lest any portion of the tumour had escaped the knife. In the course of two weeks the parts began to contract and granulate, and it was found necessary to keep the cervical canal patent by introducing one of Dr. Simpson's uterine stems. The patient progressed satisfactorily, gaining strength and colour daily, so that on the 2nd of October she was able to leave the hospital apparently cured, and better in every respect than she had been for fifteen months. She has attended as an out-patient up to the present time, and although feeling well and continuing to look so, she states that unfortunately the watery discharge has returned in a slight degree, although no trace of disease can be felt or seen on examining her; however, from the re-appearance of this formidable symptom, one is led to fear that the disease is not eradicated.

The tumour, on removal, presented a deeply lobulated surface, covered externally by a transparent membrane, resembling the arachnoid of the brain, but dipping between and dividing the lobules. Beneath it, numerous blood-vessels were seen ramifying over the surface of the lobules, just as the vessels of the pia mater are seen through the transparent arachnoid.

The cut surface of the tumour presented a brain-like appearance, and was easily rubbed down between the fingers. Here and there small loculi

or cells were conspicuous, containing fluid blood. When placed under the microscope, this brain-like tissue appeared to be made up of granular nucleated cells, imbedded in a cellular framework. The cells themselves were for the most part angular; each contained one small round nucleus, studded with molecules. I looked in vain for the "laminated capsules," (the *globes épidermiques* of M. Lebert,) which are supposed to be somewhat characteristic of epithelial cancer.

The cauliflower appearance of these tumours is not peculiar to the uterus, for epithelial cancer more or less takes this form, regardless of its seat; it is due to the multiplication and hypertrophy of the epithelial cells, forming innumerable papillary growths. Cauliflower excrescence, so far as I am aware, has never yet been found within the uterus, although it sometimes attacks the external labia, where it often passes as a form of elephantiasis.

Epithelial cancer of the uterus appears to be as certainly, though more slowly, fatal, as any of the other forms of malignant disease; like them it is a constitutional affection, for we shall almost always find that the patient can bethink herself of one or more relations who have suffered in like manner.

Mr. Paget states, that in sixty persons of both sexes operated upon for epithelial cancer, the disease recurred in twenty-nine; the rest were lost sight of. Dr. E. Watson, of Glasgow, however, states, that of nine cases of cauliflower excrescence of the os uteri treated by excision, five were radically cured, one doubtful, three died; of seven treated by ligature, the disease recurred in six, carrying off the patients, while only one was cured. Dr. Simpson, of Edinburgh, likewise records some cases which it would appear have been cured by amputation of the cervix uteri. Many papillary growths or warty excrescences growing from the os, have doubtless gone under the name of epithelial cancer. These, when removed, do not return; but I doubt extremely whether any operation in a case of genuine epithelial cancer of the os uteri will do more than prolong life; at least, in the great majority of cases, the disease will ultimately return, either in the same or some neighbouring organ, the lymphatics will become contaminated, and the patient at last succumb.

More extensive and accurate statistics of the operation are, however, required before we can arrive at any satisfactory or certain conclusions regarding it. So far, however, as inquiry has been prosecuted, we are justified in saying that amputation of the cervix ought undoubtedly to be had recourse to in all cases where an operation is admissible; and the earlier this is resorted to the better.

In the last stages of this disease, astringent vaginal injections, and especially the application of ice to the tumour itself, will do much to check the excessive discharge so exhausting to the patient. General tonics and generous diet should form a part of the treatment throughout the disease.

Gloucester-terrace, Hyde-park, April, 1854.

Practical Contributions ON THE DISEASES OF FEMALES.

By HENRY BENNET, M.D.,

PHYSICIAN-ACCOCHEUR TO THE ROYAL FREE HOSPITAL.

(Continued from June Number.)

No. VIII.

A REVIEW OF THE PRESENT STATE OF UTERINE PATHOLOGY.

The Displacement Theory.—By the expression Displacement Theory I mean to refer to the opinion held by those practitioners who consider that the displacements of the uterus so frequently recognised in females presenting symptoms of uterine disturbance and suffering, are the principal and often the sole cause of these conditions. The questions raised by the consideration of these opinions are by far the most difficult to solve of all that I have had to examine in the course of this review, and have now for many years exercised the mind of the most eminent uterine pathologists, both in this country and in France. In the latter country, the pathological importance and the treatment of uterine displacements was discussed for three consecutive months, during the year 1854, at the Académie de Médecine, and most of the more eminent Paris uterine pathologists took a part in the debate. It would indeed be vanity for me to pretend to accomplish what they failed to do,—to clear up the obscurity which surrounds this *vezata questio*, entirely to solve its difficulties, and such a pretension is far from me. Without aspiring, however, to so much, I hope to be able, by appealing this time to my own personal experience, to contribute to the defence of the doctrines, which observation has led me to adopt, from the vigorous attacks which they have had to sustain.

The existence of uterine displacements, other than prolapsus, has long been noticed by writers on the Diseases of Females, but the attention of the profession does not appear to have been more than casually directed to them, until Recamier, by his minute researches into uterine pathology, roused a new spirit of inquiry amongst his countrymen. It would appear, from the discussion at the Paris Academy, that as far back as 1826, thirty years ago, M. Amussat, impelled to inquiry by M. Recamier's example, recognised the clinical fact, that falling or prolapsus of the uterus is not the only displacement to which that organ is liable; and that displacements, forwards and backwards, anteversion and retroversion, are also very common. M. Amussat made in that year many attempts to replace the uterus, and to keep it replaced by mechanical means. He states that he invented and tried various kinds both of extra-uterine and of intra-uterine sounds, and pessaries, specimens of which he presented to the Academy at the late debate. His researches in the direction of intra-uterine support were arrested, however, by

the death of a young lady, suffering from anteversion, into whose uterus he had introduced an ivory stem pessary with the view of permanently straightening it. She went home, was attacked with inflammation, and died "promptly."

Discouraged by this sad event, M. Amussat ceased to make any efforts to straighten the uterus by mechanical agents applied to the interior of the organ, and directed his attention merely to cervical and vaginal means of treatment and support.

A few years later, M. Velpeau commenced a series of experiments with the same view, that of straightening the womb mechanically, through the agency of intra-uterine sounds. He invented a metallic spring stem, which he first introduced curved into the uterus through a gum-elastic canula, and then straightened by touching the spring. Finding, however, that although the intra-uterine sound temporarily restored the uterus to its natural direction, its presence occasioned severe accidents, M. Velpeau likewise discarded its use, and principally, from that time forward, relied on bandages of various kinds, and especially on abdominal bandages.

My own personal knowledge of Parisian uterine opinions and practice dates from the year 1836, in the early part of which I joined the medical schools of that city. During nearly eight years that I remained there, I was, without interruption, connected with the hospitals as pupil, dresser, clinical clerk, house-surgeon, or house-physician, and thus became acquainted with the views and practice of most of the surgeons and accoucheurs who have taken part in the recent debate; for it is worthy of passing remark, that surgeons and accoucheurs only spoke on the subject under discussion, not a single physician joined in it. I was from the first thrown in contact with M. Velpeau, to see whom I had visited Paris, and who then and since has ever shown himself to me the kindest of teachers and friends. I can thus bear testimony to the fact, that he was at that epoch constantly lecturing on anteversion and retroversion. Indeed, during the year 1838, when I officiated under him at La Charité, as dresser and clinical clerk, I took down many cases of this description, in his female wards. At that time, he was not using for treatment any mechanical means of support, but depending on rest, general treatment, and the use of bandages. The speculum was also but seldom resorted to, and inflammatory lesions were but little talked of. He was clearly then, even more than now, under the influence of the mechanical views of uterine pathology—that is, he then attributed, as he still does, principal importance to displacement of the uterus. He thought that they often existed independently of inflammatory action, as a cause, and considered them to be the main origin of the uterine suffering which so often accompanies them.

I was the more struck with these views, as at the same time I had become acquainted with the doctrines and practice of Lisfranc and Gendrin at La Pitié. These practitioners both used the speculum constantly, considered the lesions which it

brought to light as of primary importance, and the displacements—deviations, they are called in Paris—which accompany them, as secondary phenomena; generally speaking, the result of inflammatory engorgement or enlargement.

Since then, in Paris, uterine pathology has obeyed these two directions. Some have followed Amussat and Velpeau, and inclined to what I have called the "displacement theory"—that is, to the interpretation of uterine suffering by uterine displacement; whilst others, on the contrary, following Recamier, Lisfranc, and Gendrin, have inclined to the inflammation theory. I need not tell my readers that I myself belong completely to this latter school. The more I have studied and observed, the more convinced have I become that the true key to by far the largest part of the field of uterine pathology, is to be found in the accurate knowledge of inflammation in the different tissues and regions of the uterus. !

Although uterine pathologists have been thus, in Paris, separated, as it were, theoretically, into two schools, I may say that the actual treatment of uterine disease has not so essentially differed as might have been expected until the recent researches and publications of our countryman, Dr. Simpson, became known. All, or nearly all, admitted the frequent existence of inflammatory lesions, and taught that they ought, once recognised, to be treated and removed. Only those who considered these lesions the "*fons et origo mali*" were satisfied that they had done all that was necessary for the local treatment of their patients when they had removed them: whereas those who thought the displacements of the uterus the principal mischief, and the inflammatory lesions mere epi-phenomena, often overlooked their presence, and trusted from the first to pessaries, bandages, &c.

In the late discussion at the Academy of Medicine, these two schools were very fairly reproduced. Singularly enough, the surgeons represented by Velpeau, Amussat, Malgaigne, Huguier, &c., principally took the displacement view of the subject; whereas the inflammation view was supported by the physician-accoucheurs, Paul Dubois, Depaul, and Cazeau. This fact, which struck me at once on reading the report of the discussion, renders it all the more difficult for an impartial observer to judge between conflicting opinions, as it shows the existence of a mental bias corresponding with the general tenor of studies and professional preoccupation. Is it not possible, however, that practitioners, whose pursuits, like those of accoucheurs, are not purely either medical or surgical, and whose position in the healing art is, consequently, a double one, may be the best qualified to judge a question which evidently lies on the frontier-ground between medicine and surgery?

In Great Britain, displacements of the uterus, with the exception of prolapsus, were but little thought of until the publication of Dr. Simpson's paper on the Uterine Sound, in 1843, and more especially that of his essay on Retroversion of the

Unimpregnated Uterus, in the *Dublin Quarterly Journal* for May, 1848. In this latter able and lucid memoir, Dr. Simpson described at length retroflexion and retroversion of the uterus. Finding the replacement of the retroverted uterus by means of the uterine sound totally inefficient, he proposed for their treatment his fixed stem pessary. This pessary comprises, as every one knows, three parts, the stem two inches and one-third long, which occupies the cervical canal, and enters the uterus, terminating in a bulb on which the cervix rests; and the vaginal and external parts, by means of which it is fixed on the pubis. It thus mechanically straightens the uterus, and maintains it all but immovable. In his essay, Dr. Simpson merely alludes to anteversion, on which French pathologists lay great stress, and he does not speak of lateral displacements, or latero-versions. He enters, however, at length into the pathology of retroversion, and ascribes to it most of the symptoms of uterine disturbance and suffering which I and others ascribe to inflammatory lesions. The intra-uterine mode of treatment is also brought forward by Dr. Simpson, in the essay in question, as one which he had tried for some time, found free from risk or danger, and pre-eminently successful.

The intra-uterine, or stem pessary, thus revived,—simplified and improved no doubt, and guaranteed as a safe and efficacious agent by a pathologist of great weight and authority,—was received with favour both in this country and abroad, by the followers of the mechanical or displacement school. To them the deviations of the uterus were still the principal cause of the uterine suffering, and yet they were miserably deficient in means of treatment. M. Amussat was reduced to propose to establish adhesion between the posterior surface of the cervix uteri and the vagina by means of potassa fusa! M. Velpeau seemed to rely on abdominal and other bandages; M. Hervey de Chevignat and others, on vaginal pessaries of various forms and materials: and all to little or no purpose, for the displacements were obstinate, and the womb would not be replaced or straightened by such means. This favour was greater even in Paris than in England, owing to the greater hold that these doctrines had over the medical mind. The late M. Valleix, like myself, an old pupil of M. Velpeau, more especially distinguished himself by his ardent and uncompromising advocacy of the displacement theory, and of the treatment of uterine displacements by the use of the intra-uterine stem pessary.

It would be vain to attempt to reproduce the various arguments that have been adduced on both sides at home and abroad; it would take volumes. I shall therefore confine myself to recording my own opinions, and the data on which they are founded. Seven years' additional personal experience, and an attentive study of all that has been done and said during that time, have only confirmed the views which I advanced in the second edition of my work on "Uterine Inflammation" in 1849. I then said, and still believe, that

the displacement theory, as an explanation of the morbid uterine and general symptoms of those who present uterine displacements, is an error. I also stated that most (not all) of these uterine displacements had their origin in modifications of volume, the result of inflammatory lesions, directly or indirectly; and that the rational treatment of these displacements consisted in the treatment of the inflammatory lesions which produce them.

I have myself had little experience of the fixed intra-uterine stem pessary: firstly, because, holding the above views, I did not often see its applicability, or the necessity for its use; and secondly, because I was afraid of it, for reasons which I shall give hereafter. The experience of others, however, now obliges me to say that its use is attended with considerable risk and danger. Although Dr. Simpson has himself, I believe, had no fatal accident in his practice, several fatal cases have occurred in England, and in Paris seven deaths from the use of the intra-uterine pessary have been published—the one of M. Amussat, which occurred in 1826, and six recent cases. Of the latter, three have taken place in the practice of M. Valleix—two from acute peritonitis, and one from secondary pelvic abscess; one in that of M. Nélaton; one in that of M. Maisonneuve; and one in that of M. Aran. The three last were also cases of acute peritonitis. The discussion at the Academy of Medicine, on uterine displacements, and on their treatment by the intra-uterine pessary, originated in the communication to the Academy of the history of two of these fatal cases.

In my next paper I shall take into consideration the facts derived from my own personal experience, which have led me, individually, to repudiate the doctrine of uterine displacement as the principal cause of uterine suffering, and which have prevented my resorting, unless in exceptional cases, to mechanical means for the treatment of these displacements.

Grosvenor-street, 1856.

Note.—Dr. Tyler Smith's "Observations" in the last published *LANCET** require a few words of comment on my part.

Dr. Tyler Smith says that I complain of his having shown a want of candour in not acknowledging that his opinions respecting uterine ulceration have considerably changed since 1850—that is, since his appointment to St. Mary's Hospital. Such, I freely admit, is the conclusion which may be drawn from my remarks, and nothing which he now says is in any respect calculated to modify my impressions. They are founded on the extracts which I have given from his essay in 1850, and from his work in 1855; as, also, on the general tenor of both the essay and the work. The distinctions which Dr. T. Smith again establishes between abrasions, excoriations, and ulceration were all fully recognised by me, and the subject was thus discussed on his own ground. What I stated, and what I again state, is, that his opinions respecting the second stage of "non-malignant

* *Vide* June No., page 554.

mucous membrane morbid destruction" are now modified; that it is now, in his eye, as it has ever been in mine, positive ulceration, and not merely, as he formerly believed, a granular, conjunctival-like condition. To those who feel sufficiently interested in the question to wish to form an opinion for themselves, I would recommend the perusal of Dr. Smith's essay, (see *THE LANCET* for April, 1850;) also that of the fifth chapter in his recent work; and Dr. Robert Lee's memoir, which was given in on the 9th of April to the Medico-Chirurgical Society, although only read in May. I, moreover, still believe that it is the practical experience acquired since 1850 which has led Dr. Smith to recognise and describe the "granular condition" as a really ulcerative one, and which has also led him to adopt surgical means of investigation as the rule in cases of chronic uterine ailment, in opposition to his former strongly expressed opinions.

I quite agree, however, with Dr. T. Smith, that we differ as much as ever, nay, more than ever, as to the cause and intimate nature of morbid uterine states. Indeed, it seems to me, that I have lately been at some little trouble to show the profession that he is wrong, and that I am right, in this respect. What I meant when I said that the gulf between us had been narrowed is, that Dr. Smith, in his recent work, since he has been observing on a larger scale, has recognised and reproduced so many of the descriptions of morbid uterine lesions previously given in my work, that there really is now but little difference between us as to mere morbid lesions, mere anatomical facts. Of the four words which he mentions with apparent disapproval—inflammation, ulceration, induration, and hypertrophy—there is only one—the first and most important, it is true—"inflammation," which he has ignored and banished from his mind and his work. Such being the case, even if there "is not now that perpetual iteration of these words which existed six or seven years ago"—a rather doubtful proposition—Dr. Tyler Smith can scarcely claim to have effected the change. We have seen at what length ulceration has been described, and I must now remind him of a page in his work which he appears to have forgotten in more senses than one. The page alluded to (89) is headed *Induration and Hypertrophy of the Os and Cervix Uteri*, and runs as follows:—

"The long continuance of leucorrhœa, and the consequent irritation, generally induce induration and hypertrophy of the os and cervix. In some cases the enlargement of the cervix appears to consist of fibrinous effusion in the substance of the cervix; in others it is simply cedematous, or there may be a varicose state of the cervix; but cases occur where, from the hardness of the enlarged os and cervix, it is most probable that a true hypertrophy of the fibrous tissue of the cervix takes place. The hypertrophied cervix takes very different forms in different cases. The whole of the cervix may be enlarged equally, or the hypertrophy may be confined to the anterior or posterior lip. In women who have borne children, the

hypertrophy is rarely symmetrical, but is found in the form of irregular knobs, divided by deep fissures. These fissures are often in a state of ulceration; pus is secreted in abundance, and some care is required in the diagnosis between such cases and the commencement of carcinoma."

I have given this paragraph at length, because it not only shows that Dr. Tyler Smith now frequently meets and recognises *induration* and *hypertrophy* of the cervix, and can find no better term for these conditions, but because it also illustrates the morbid conditions which I often find intractable to astringents and to the nitrate of silver, and which in my experience, when such is the case, can only be *radically* cured by the use of vitality-modifying agents, that is, by the stronger caustics.

If Dr. Tyler Smith is to be considered deficient in scientific candour for not having acknowledged the modifications which additional experience has produced in his opinions respecting uterine ulceration, what term is sufficiently strong to apply to the strange and unjustifiable manner in which he has mixed up my name with cases of malapraxia, which he has observed at St. Mary's, with cases of mutilation and destruction of the cervix, of obliteration of the vagina, &c., from the action of caustics imprudently used.

I have no hesitation whatever in stating, in the most peremptory and decided manner, that no cases of this description, which Dr. Tyler Smith may have seen either at St. Mary's or elsewhere, were or have been cases under my care, and I defy him to prove to the contrary. I have been now many years in practice, and hundreds of my patients, poor and rich, are disseminated throughout the length and breadth of the land, but not one of them bears the trace of either mutilation or destruction of the cervix uteri. I was the first, it is true, to introduce potassa c. calce as a surgical agent in the treatment of uterine disease to the profession in this country; but I have ever taught that it ought only to be used to modify morbid vitality, not to destroy diseased or hypertrophied tissues. This, indeed, is the principle I have constantly kept in view, and on which I have constantly laid the greatest stress with reference to the whole class of caustic agents.

This rule, I may mention, however, has not been adhered to by all. Dr. Simpson, of Edinburgh, with his usual surgical perspicacity, saw at once the advantage to be derived in obstinate cases from so manageable a remedy as potassa fusa, and not only adopted it, but recommended it to be used for the purpose of actually destroying part of the diseased regions of the cervix uteri, (see his collected memoirs, vol. i., page 101.) I must say that I think, and have always thought, Dr. Simpson wrong in thus departing from the rules of conduct which I had laid down; and the paper that I read at the Medical Society (see *THE LANCET*, July, 1854) was principally written to discountenance such practice, and to bring again clearly forward my own more cautious treatment.

All this Dr. Tyler Smith knows as well as I do, and he has no right to make me responsible for

the ideas and practice of others, or to endeavour to damage me by implying, as he evidently does in his "Observations," that I am responsible, either personally or by precept, for the disastrous results which he says he has observed. Knowing, as he must do, that it is Dr. Simpson, and not I, who advises hypertrophy of the cervix to be "destroyed" in some cases, he ought, both in his work and in his recent "Observations," to have attacked, not me, but Dr. Simpson himself, or at least those of his too-enthusiastic followers who may have perpetrated the misdeeds he justly enough condemns. I presume, however, he would rather have me for an antagonist than the powerful Edinburgh professor, than whom no one is better able to defend his views and practice.

Not having any personal experience *whatever* of the stronger caustics in the treatment of intractable uterine disease, as he himself admits, Dr. Tyler Smith thinks that they cannot be used, without entailing permanent destruction of the healthy cervical structure, and all the disastrous consequences to which he alludes. I beg to assure him that this is an error that the additional experience to which I have appealed, and do appeal, will most assuredly dispel. The acid nitrate of mercury, which I strongly recommend, and often use, is only by two days stronger than the nitrate of silver—that is, the eschar separates on the sixth day, and the beneficial effect is obtained on the seventh day; whereas, when the nitrate of silver is used, the corresponding days are the fourth and fifth. If a small eschar, of the moderate and reasonable size and depth which I have alone sanctioned in any case, is formed with potassa cum calce on the healthy cervix, as an issue, as a last remedy in chronic partial metritis—a plan of treatment I have adopted in a few rare cases with success—the sore thus made heals in about twenty days. If the cervix is the seat of intractable, unhealthy ulceration, or of chronic inflammatory induration and hypertrophy, the sore which follows the same eschar will take from thirty to forty days to heal, or at least the beneficial effect will only be completely obtained in that time—a fact which shows how profoundly different is the state of vitality of the cervix when healthy and diseased. In either case, but more especially in the last, the tissues acted upon by the caustic itself are so thoroughly reproduced, that after a few months, or even weeks, it would be impossible to say that any caustic had been used. The beneficial effect produced is the secondary softening and melting of the indurated hypertrophied tissues, and the healthy healing of ulcerated surface. As to the actual cautery, I seldom use it, for the reason Dr. Smith gives, and which I gave before him, many years ago, owing to its apparent cruelty. In reality, it gives but little pain, and is equally potent to restore healthy action in the diseased tissues, and by the same therapeutical process—by modifying vitality, not by destroying diseased tissues.

I may safely say, that I have *radically* cured hundreds and hundreds of women through the instrumentality of these means of treatment,

whom I could only have *partially* cured without; and that without ever having had a single accident, or "mutilated" a single patient. My midwifery practice lies principally amongst my former patients; and I have attended scores of women in labour whom I had previously cured by the above agencies, without any kind of difficulty or danger. Indeed, through the removal of induration and hypertrophy of the cervix, they escaped the dangers to which it exposed them—rigidity of the cervix, lacerations, hæmorrhage, &c.

My explanation of Dr. Tyler Smith's assertion, that he cures all his patients, even those presenting the severe intractable lesions he himself describes in the paragraph I have above quoted, without having recourse to the vitality-modifying agents we are discussing, is a very simple one. I believe that he is satisfied with a less complete restoration of the healthy condition of the neck of the uterus than I am. I am more difficult to satisfy, because I know from long experience that if I leave any chronic inflammatory disease, it prevents the recovery of the general health, and eventually reproduces all the local mischief.

In conclusion, as Dr. Tyler Smith, both in his work and in his Observations, has attacked the views I uphold on this subject, without being candid enough to give me credit for the opinions which I really do profess, I must be allowed to make one or two quotations from my own work. Thus, in the third edition, 1853, page 297, will be found the following remarks. The italics are in the text.

"It cannot, however, be denied that cauterization of the cervix, as above described, and especially deep cauterization, is *an operation*, and, like all operations, surrounded with danger. It must not, therefore be either injudiciously resorted to, or carelessly carried out, although my own practice has hitherto been free, or all but free, from serious accidents. The same immunity does not appear to have attended that of others. Various cases in which serious accidents have followed the use of the caustic potash have been narrated as arguments against its use since the last edition of this work was published; and M. Gendrin has himself, within the last few years, had several cases of acute metritis, and of abscess in the lateral ligaments, the evident and immediate result of deep cauterization. He has, however, seen the same results follow the use of the nitrate of silver, and of injections; and I may mention, that the two most severe instances of acute metritis that I have myself witnessed for some time in the unimpregnated womb, occurred after the use of weak astringent vaginal injections."

Again, at page 302: "I must, however, *most emphatically* guard practitioners against an error into which there would appear to be some danger of their falling, from misinterpretation of my views. I wish it to be most distinctly understood that I do *not propose to destroy* the hypertrophied cervix by cauterization, but merely to set up an artificial eliminatory inflammation, by means of an eschar or issue, of *limited extent*, established in the

centre of the hypertrophied region. I do not calculate, in the remotest degree, on the destruction of tissue to which the caustic or cautery gives rise, for diminishing the size of the hypertrophied cervix, but solely and entirely on the inflammation subsequently set up. Any attempt actually to destroy the hypertrophy by direct cauterization appears to me both dangerous and unnecessary; dangerous, because I should be afraid that the intensity of the reactional inflammation would be so great as often to extend to the uterus or to the lateral ligaments, and because I consider it next to impossible always to limit the action of the caustic when applied with such profusion; unnecessary, because a mere eschar, of the size of a shilling, will answer the purpose of reducing the hypertrophy equally well. It may, perhaps, be necessary to apply it several times; but of what consequence is prolonging for a few weeks the treatment of a disease which must have existed for years to require treating at all by such agents, compared with the danger of perforating the vagina, and causing peritonitis, or of giving rise to acute metritis."

What can be more conclusive as to my real opinions than the above passages? Can the distinction between use and abuse be more forcibly drawn? Is it possible, I ask, that Dr. Tyler Smith can have overlooked or misunderstood these passages? And if he cannot, has he acted justly towards me, or candidly towards the profession, in publicly accusing me of doctrines which he well knows I have never either taught or practised? He must excuse me if I venture to make one more prediction—viz. that the day will come when he will feel that it is an error in judgment—to say the least—in a scientific controversy, to endeavour to enlist the sympathy and acquiescence of his readers by misstatement, by passionate appeals to prejudice, and, still worse, by groundless insinuations. This Dr. Tyler Smith did in 1850, and this he again does in 1856.

NO. IX.

A REVIEW OF THE PRESENT STATE OF UTERINE PATHOLOGY.

The Displacement Theory.—In order to appreciate correctly the intricate question of uterine displacements, there are various facts, anatomical and physiological, which should be known and borne in mind.

The principal anatomical feature to which I would draw attention is, the extreme mobility of the healthy unimpregnated uterus. This extreme mobility may be proved experimentally. If the index finger is passed into the vagina—the patient lying on her back, the pelvis elevated, and the knees flexed—and if pressure is made on the cervix with the finger, it will be found that the healthy uterus yields with the greatest readiness to the slightest impulsion. It affords so little resistance to the finger that, if the bladder and rectum are empty, it may be either raised directly upwards, towards the upper pelvic outlet, or depressed posteriorly, anteriorly, or laterally, and

that with the greatest ease, and without the patient experiencing even discomfort.

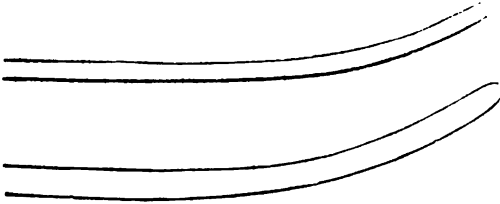
The anatomical explanation of this great freedom of motion of the healthy uterus is to be found in the smallness of its size, and in the laxity of its connexions with the pelvic organs and cavity. In the female who has not borne children, the uterus only weighs an ounce and a half; even in the female who has borne children, it does not weigh more than two ounces in the ordinary healthy state. This smallness in size of the uterus is evidently a provision of Nature. A small, light organ could be supported and kept *in situ* without the necessity of strong, unyielding bands or ligaments; whereas such means of support and retention would have been indispensable had the uterus been large and heavy, and at the same time would have been quite incompatible with the changes which it is destined to undergo in pregnancy.

On examining minutely the means of support which the uterus presents, we find that they are very slight. The lateral ligaments are not so much means of sustentation as peritoneal folds, enveloping the uterine appendages,—the ovaries, Fallopian tubes, and round ligaments. The latter, by their passage through the inguinal canal, and their firm cutaneous attachment, are really means of sustentation; but the support which they give to the uterus is very much like that given to a swing by the two ropes which suspend it, and which allow great freedom of motion in every sense. The insertion of the vagina on the neck of the uterus, and the closure of the vaginal canal on the lower extremity of the cervical bone, evidently constitute another important means of sustentation. It is at the insertion of the vagina on the neck of the uterus that the neck or lower segment of the uterus passes out of the pelvic cavity through the inferior pelvic fascia, which probably assists the vagina to support it. The connexion between the fundus of the bladder and the neck of the uterus contributes, no doubt, to fix the uterus in its normal state; as also does the pressure of the surrounding organs, the pelvic cavity being full and more or less closely packed during life.

If the walls of the abdomen are removed, and the uterus is examined *in situ*, it will be found that the uterus and the lateral ligaments extend across the pelvic cavity, and divide it into two sub-cavities; one smaller, the anterior, which contains the bladder; the other larger, the posterior, which contains the rectum. The uterus and the bladder are generally in *juxta-position*; but the uterus and rectum, especially when the latter is empty, are separated by portions of the small intestines, which fill up the pelvic cavity and form a posterior support to the uterus.

The healthy uterus, in its normal condition and position, is generally, I believe, if not always, slightly inclined forwards,—that is, slightly anteverted. This fact is not mentioned by anatomists, but if true, as I believe it to be, is of importance, from its direct bearing on the pathology of one of the forms of uterine displacement—anteversion. I became acquainted with the exis-

tence of this normal anteversion accidentally a few years ago. Finding, as I have elsewhere stated, that the vital contraction of the os internum during life often opposes considerable resistance to the introduction of the sound into the uterus, I tried small wax or gum-elastic bougies, which generally pass with comparative ease. If these bougies are left a minute or two in the uterine cavity, the uterus being perfectly healthy and normal in size, on withdrawal they invariably present a slight anterior curve, as in the accompanying wood-cut:—



The degree of the curve varies as in the engraving, which represents two bougies that had been allowed to remain a couple of minutes in the uteri of two young sterile patients, perfectly free from uterine disease. One I had treated successfully, by dilatation, for dysmenorrhœa, the result of congenital narrowness of the cervical canal; the other I had treated for an inflammatory affection of the neck of the womb, and she had quite lost all morbid symptoms. Every precaution was taken to insure correctness; the bougies being introduced by means of the speculum. This slight curve I find so constantly as I describe and portray it in the healthy uterus, that I cannot but consider it to be a natural one. Its existence, moreover, is corroborated by the researches of M. Boulard, a young Paris surgeon, Prosector to the Faculty, who, after numerous and extended cadaveric investigations, has arrived at the same conclusion. Thus, his researches tend to establish by the examination of the dead, what mine tend to establish by the examination of the living,—viz. the existence of a slight degree of anteversion as a natural anatomical state. M. Boulard's statements were discussed, and partly substantiated, partly negated, at the Academy of Medicine, but principally on data furnished by the digital examination of living patients. The least consideration, however, will show that such a slight curve as the one indicated in the wood-cut above can be scarcely appreciable to the touch, although pathologically very important, as a predisposing cause of morbid anteversion.

The axis of the unimpregnated healthy uterus is generally considered to be that of the upper pelvic outlet; but if the slight anterior curvature which I describe is recognised, we must admit that the axis of the upper portion of the uterus only corresponds to the upper pelvic outlet, whereas that of the lower portion or neck would partly correspond to that of the lower pelvic outlet. M. Cruveilhier says that the uterus has "no axis"—meaning thereby that its changes of position are so variable and constant that it can scarcely be

said, anatomically speaking, to have any normal axis.

In speaking of the axis and normal position of the uterus, it is necessary to call to mind the fact that congenital modifications of form and axis are occasionally found. The uterus may be anteverted, retroflexed, or lateroflexed as a congenital state, the inflexion varying from a scarcely perceptible degree to one in which the uterus is completely bent on itself, so that the cervix and body of the uterus correspond. These congenital malformations were ably described by M. Huguier a few years ago; and I have repeatedly met with illustrations of this form of deviation of the uterus from its normal standard.

The position of the uterus, and consequently its axis, is often changed or modified, owing to a physiological cause—marriage—which acts independently of disease of any kind or description. This really physiological displacement is of such constant occurrence, that it ought to be taken seriously into consideration, and I am much surprised that none of the speakers at the French Academy mentioned it. Under the influence of congress, in a great number of women entirely free from any morbid uterine state, sterile or not, the cervix is thrown mechanically backwards, and the body of the uterus forwards, that is in anteversion. This is more especially the case when the vagina is short, or when the cervix is long from the vagina being inserted high up on the uterus, so as to expose in the vaginal cul-de-sac a considerable portion of the uterine neck. This frequent existence of deviation or displacement of the cervix backwards, and of the uterus forwards, as a really post-marital physiological state, independently of any morbid uterine condition, or of any kind of pelvic change or influence, must be considered an important element in the appreciation of the pathological importance of anteversion of the uterus. Indeed, its non-recognition, in my opinion, renders to a great extent valueless the conclusions of many who have spoken and written on the subject.

Owing to the laxity and freedom of the anatomical connexions which I have above described, the uterus moves, as we have seen, with the greatest freedom in the pelvic cavity, readily adapting itself to the ever-varying positions which it is called upon to assume. Thus, if the bladder is full, it presses on the uterus and retroverts it, a fact which can easily be ascertained. If the rectum is loaded with feces it displaces the small intestines, presses on the uterus from behind, and anteverts it. In walking and riding the uterus sways to and fro, more or less, according to the degree of tightness with which the pelvic viscera are packed, and according to the degree of support it receives. Both in walking and in standing it falls slightly; indeed, I much question, whether, in every woman, however healthy, the uterus is not always lower when she retires to rest at night, than when she rises in the morning. Moreover, in the married condition, it is constantly exposed to violent physiological displacements.

The freedom of motion which its ligaments and modes of attachment allow to the uterus is, however, most forcibly illustrated by the change of position which occurs in pregnancy. After the first few months of pregnancy, the enlarged uterus ascends and leaves its former position and connexions in the pelvic cavity, becoming for a time an abdominal organ. To admit of this entire change of position, the lateral ligaments unfold, and the round ligaments are elongated as the uterus increases in size. At the termination of the pregnancy, the uterus, which in a primipara has increased from one ounce to thirty or forty ounces, rapidly returns to all but its former size,—to about two ounces,—passing through a series of vital changes. This marvellous return to all but the original size and weight no doubt takes place, in order that the means of support which we have enumerated may again be sufficient to support the uterus, and to maintain it *in situ*. These changes, from small to large, and from large to small, moreover, are capable of being reproduced an indefinite number of times, during the period of ovarian activity. It is to this end that the uterus is made an organ apart from all others; that it is endowed with vital powers which no other either requires or possesses.

From what precedes,—and the facts which I have advanced cannot be denied,—it is evident that even the unimpregnated uterus, in health, is by no means destined to remain constantly in the same anatomical position, to preserve constantly the same axis. It is also equally evident that the healthy uterus bears changes of position, and considerable pressure from surrounding organs, &c., without either pain, discomfort, or inconvenience.

The explanation of this fact is to be found in a physiological law, which, although well known, appears to me to have been all but entirely lost sight of in the discussion of uterine displacements. All our organs, internal and external, *when in a healthy state*, are capable of bearing, without pain or inconvenience, considerable pressure, and any degree of displacement of which their means of fixity can admit. Thus, if a healthy person lies on the side,—say the right side,—the heart, the left lung, the stomach full of food, obey the laws of gravity, fall more or less, and press on the organs beneath them; and that, as I have said, without occasional pain or inconvenience. Were any of these organs inflamed, however, the result would be far different: great pain would be experienced. Thence it is that patients suffering from inflammation of any thoracic or abdominal organ lie on the back, to avoid the pressure of the surrounding viscera on the diseased organ, pressure which it can no longer bear.

It may be objected that physiological pressure, the result of change of position and of functional conditions, is essentially temporary, and that, were it permanent, it would not be so easily borne. Here, however, general pathology comes to our assistance, and teaches us that *non-inflammatory* morbid growths and tumours, slowly developing themselves, may exercise considerable permanent

pressure on the organs which surround them, in any part of the economy, without the supervention of any symptoms of distress or inconvenience. This fact, which has not received the attention it deserves, I developed at considerable length in the third edition of my work; and I shall conclude this rapid survey of the anatomy and physiology of the uterus with reference to its mobility by the following extract, page 405:—

“The impunity with which pressure may be exercised on viscera and organs by tumours, the growth of which is very gradual, may be observed in every part of the economy. Even the brain, the most sensitive of all to pressure, will bear it if very gradually applied. Thus, we often see exostosis and tubercular formations greatly compressing the cerebral substance without the supervention of any symptom until the growths have reached a considerable size, or until inflammation supervene. It may, indeed, be considered an axiom in pathology, that all organs will largely accommodate themselves to pressure, provided such pressure be gradually applied, not carried to the extent of seriously interfering with their functions, and be unaccompanied by inflammatory action. The history of fibrous growths (of the uterus) permits no room for doubt on this question. These growths almost invariably attain a considerable size, and deeply modify the position of the uterus, giving rise to retroversion, or anteversion, and exercising considerable pressure on the pelvic viscera, before they occasion any appreciable symptoms. In fact, my experience shows that patients thus suffering seldom complain at all, unless there be some concomitant inflammatory affection of the cervix, or of its cavity, until either the external appearance of the abdomen be modified by the size of the tumour, or until hæmorrhage supervene—the first period of the existence of the tumour, and the displacement which it occasions, passing unperceived and unnoticed by the patient herself, and by her medical attendant.”

No. X.

A REVIEW OF THE PRESENT STATE OF UTERINE PATHOLOGY.

The Displacement Theory.—In my preceding communication I drew attention to the smallness of size and lightness of weight of the uterus; to the great laxity of its means of support and fixity; to the extreme mobility which it consequently evinces; to the ease with which it obeys the many physiological causes of displacement to which it is subjected; and to the complete immunity from pain, or even inconvenience, with which these displacements are borne.

I explained the immunity from pain evinced by the uterus when displaced under the influence of physiological causes, by referring to the law through which all our viscera bear, without inconvenience, any amount of displacement compatible with their means of fixity, and any amount of pressure to which they can be exposed from the proximity and functional activity of surrounding organs.

I pointed out that this capability of our organs to bear considerable pressure without inconvenience is not only observed in the temporary physiological conditions described, but is also found to exist under the permanent pathological pressure of *non-inflammatory* morbid growths, such as tumours, aneurisms, &c. I then laid stress on the very important fact, that when once inflammation supervenes, this immunity from pain and inconvenience on pressure ceases;—as evidenced by the inability of patients suffering from inflammation of the abdominal or thoracic viscera to lie otherwise than on their back: or as evidenced by the pain which is experienced on the pressure of an inflamed finger. Finally, I recalled the rapidity with which the uterus increases in size and weight under the influence of the physiological stimulus of pregnancy, and reverts to its natural size and weight when that stimulus is removed. This brief recapitulation of my last communication is necessary, as in the above facts is found the key to the history of uterine displacements or deviations, as I have interpreted them.

The uterus may be displaced or deviated in various ways. Its position and form may be modified with reference to its own axis, or with reference to its conventional anatomical pelvic axis, which corresponds, as we have seen, to that of the upper pelvic outlet. When the axis of the uterus itself is modified, the uterus is said to be flexed, anteriorly, posteriorly, or laterally; and we have thus antero-flexion, retro-flexion, and latero-flexion. When the uterus is displaced *in toto*, without any abnormal bend or flexion taking place, so that its axis is changed with reference to that of the upper pelvic outlet, it is said to be antero-verted, retro-verted, or latero-verted.

Practically, these two forms of uterine displacement are so often met with in the same uterus, and are often so evidently stages, degrees, of the same morbid state, that Dr. Simpson has merged them into one, and only recognises, practically, three forms of uterine displacement—antero-version, retro-version, and latero-version. *Theoretically*, however, we must accept the two; for if these displacements really do exercise an important influence in the production of morbid uterine and general symptoms, the *modus operandi* in both, or at least in the more simple cases of both, must be quite different. In simple flexion, unaccompanied by uterine enlargement, the pressure is merely intra-uterine,—is only felt, in an appreciable degree, by the walls, vessels, and nerves of the bent uterus. In actual displacement of the uterus in mass, the uterine structures themselves remain as they are; the pressure is on the surrounding organs, and the strain is extra-uterine; on the ligaments and extra-uterine vessels and nerves.

Simple or combined, these morbid conditions of uterine position—to which we must add prolapsus, more or less complete, of the entire organ—are generally found to coexist with the uterine suffering or ailment to which I have so repeatedly alluded, and with the inflammatory lesions which so usually accompany it. The partisans of “The

Displacement Theory” attribute to the existence of these displacements primary importance, and think that, in the majority of cases, they are the real cause of the mischief existing; that they constitute the morbid condition which principally requires treatment. In their eyes the coexisting inflammatory lesions, the ulcerations, hypertrophies, and indurations, are, in many, if not in the majority of cases, epiphenomena, either occasioned by the displacement, or merely complicating it.

The reasons which have led me to the conclusion that these views are erroneous, that the displacement is, on the contrary, in most instances, really the epiphenomenon, and that it does not require, generally speaking, actual treatment of any kind, may be divided into physiological, pathological, and therapeutical.

Physiologically, we have seen that the uterus bears pressure and displacement, when perfectly healthy, without pain or inconvenience. We have seen also, that in the married state the neck of the uterus is very frequently mechanically retroverted, thrust on the rectum, into the sacral cavity,—the body of the uterus being, at the same time, anteverted,—and yet that all goes on normally, without either distress or discomfort being experienced. We have seen that slight anteversion, or anteversion, is probably a natural condition during life, and that very decided flexions of the uterus may exist congenitally, or be produced by accidental causes, such as violent efforts, habitual rectal constipation, or even menstruation, and remain for a time or for life, without producing any morbid symptoms. Such being the case, on what reasonable grounds can we be called upon to attribute to a slight flexion or to a slight displacement of the uterus the symptoms of uterine suffering presented by a female in whom one or the other coexists with inflammatory lesions? Is it sound logic—is it rational, so to do? Is it not much more consistent with physiological observation and common sense to attribute the uterine and general disturbance to the inflammation, and to consider the displacement as the epiphenomenon—as the secondary, comparatively unimportant, element? And if this reasoning applies to slight displacements, does it not also apply, by extension, although in a minor degree, to the more decided uterine displacements when connected with inflammatory lesions?

Pathologically, there are many valid reasons for considering moderate displacement of the uterus a phenomenon of secondary, and not of primary, importance, in the cases of uterine suffering in which it is observed. The inflamed uterus, instead of bearing, without inconvenience, as the healthy uterus does, pressure and displacement, often becomes extremely tender, and, like the inflamed finger, suffers not only from pressure, but from mere contact. Thus, even when there is no deviation or displacement of any kind, we frequently find that females who are labouring under slight uterine inflammation, complain greatly of weight, heaviness, and bearing down, and are unable to stand or walk with ease. The mere phy-

biological weight of the inflamed uterus or cervix uteri, its mere contact with, and pressure against, the surrounding organs when in the erect position, becomes all but unbearable, and the recumbent position is sought with eagerness. Why, therefore, should we attribute uterine suffering to displacement only, or even principally, if, on the one hand, we constantly find all the symptoms, local, functional, and general, that characterize such suffering existing in cases where there are inflammatory lesions only, without either deviation or displacement; whilst, on the other hand, mere displacement unattended with inflammatory disease fails to produce these symptoms?

This train of reasoning becomes the more cogent when we consider that—setting aside the physiological and accidental displacements to which I have alluded—uterine displacements are generally the immediate result of enlargement of the uterus or of its cervix, and that enlargement of the uterus is generally the result, direct or indirect, of inflammation. Both these propositions have been contested, and yet it appears to me that they admit of easy demonstration. We have seen that the uterus is physiologically endowed with a vital property that no other organ possesses. Under the influence of its normal stimulus, a fecundated ovum, it increases to twenty or thirty times its usual weight in the course of nine months; and once freed of the ovum, it rapidly diminishes, so as to return in a few weeks to its natural size. This property is capable of being roused by other than physiological stimuli. Almost any morbid stimulus is followed by the same vital result. Thus all kinds of morbid growth, which originate in the substance of the uterus, are attended with the development and aggrandisement of the uterine structures. Inflammation of the uterus also, wherever situated, is usually attended with enlargement, as in other organs, but more readily than in other organs. If the inflammation is general, the entire uterus enlarges; if it is local, the part affected increases, either alone or principally.

This form of uterine enlargement is the direct result of inflammation acting on tissues vitally prone to develop themselves. There is, however, another form of uterine enlargement, indirectly the result of inflammation, which is of great importance, and which does not appear to me to have received the attention that it deserves—viz. enlargement from the premature arrest of the absorption or transformation process, which physiologically reduces the uterus to its normal size after parturition. This pathological arrest frequently occurs as a result of metritis, and, more frequently still, as the result of inflammatory lesions of the cervix uteri, existing before labour, or produced by contusions or lacerations during labour. Under the influence of uterine irritation thus induced, instead of diminishing—as it ought, until it reaches a weight of two ounces—the uterus stops short at three, four, five, &c. When the arrest is connected with actual metritis, the enlarged uterus is sensitive to pressure, and all the symptoms of chronic metritis are present. When, on the other hand,

it is the mere indirect result of cervical disease, the uterus is in a passive state of enlargement only, and is neither sensitive nor painful on pressure.

As the uterine cavity enlarges along with the walls when the uterus is generally enlarged, we have in the uterine sound a valuable means of estimating, indeed of positively measuring, the size of the enlarged uterus. Should there be any difficulty in passing the sound, a small wax bougie may be used, as I have stated, and if left a couple of minutes will give a model of any incurvation that may exist.

The means of sustentation which the uterus possesses are adapted, as we have seen, to support an organ one or two ounces in weight only. If the uterus enlarges regularly, through the presence of a morbid growth in its cavity,—a fibrous tumour, for instance,—it may gradually rise out of the pelvis, as in pregnancy; but when the enlargement and increase of weight are partial or concentric, and limited, the tendency is for the uterus to follow the laws of gravity, and to fall either backwards in retroversion, or forwards in anteversion, or downwards in prolapsus. The direction which the uterus takes depends on various circumstances. If the enlargement or increased weight is principally in the posterior wall of the uterus, as is often the case, or if the patient lies much in the recumbent position, the tendency is for the weighted uterine fundus to fall backwards in retroversions. If the anterior wall is the seat of enlargement, the uterus may fall forwards in anteversion. Anteversion also very frequently occurs as a direct result of the mechanical post-marital displacement backwards of the neck of the uterus, which I have described: especially when the cervix itself is hypertrophied and indurated. The natural ante-flexion which I have described is also, no doubt, a predisposing cause of this displacement. When the uterine enlargement is general, not very great, and the patient is obliged to stand and walk considerably, the uterus falls directly, giving rise to prolapsus.

Partial prolapsus is one of the commonest of all uterine displacements, and the study of the conditions under which it takes place throws considerable light on the displacements of the body of the uterus. Prolapsus of the uterus, as distinguished from anteversion and retroversion, is most frequently the result of the increase in size and weight of the lower or cervical segment of the organ. The cervix uteri becomes enlarged as a result of metritis, or of the arrest of post-partum absorption; or, as is much more frequently the case, of local inflammatory disease of the cervical mucous membrane. Its weight being increased, it drags down the uterus, like a piece of lead affixed to the bottom of a cork floating in water would drag down the cork. This displacement is more especially prone to occur if the floor of the pelvis, the vagina, the vulva and perineum, and the uterine ligaments generally, have been relaxed and over-distended by frequent parturition. When the cervical or vaginal mucous membranes, or both, are inflamed and

tender, prolapsus is attended with considerable distress; but when these conditions are absent, the cervix may be very low in the vagina without either pain or discomfort being experienced. This is a pathological illustration of the fact which we have already seen physiologically demonstrated—viz. that a considerable degree of uterine displacement, of any description, may exist without distress, provided there be the absence of inflammatory action.

The latero-versions which are not occasioned by adhesions, the result of pelvic abscesses, peritonitis, &c., are I believe, nearly always congenital. In some women, the healthy normal uterus lies diagonally in the pelvis, the cervix being directed to the groin, and the fundus towards the ilium. This congenital deviation is generally observed from right to left—that is, the uterus lies so that the cervix is directed towards the left groin. As I observe in my work, page 11, "This fact, which is not mentioned by anatomists, should be borne in mind, as ignorance of it may lead to error in the diagnosis of disease. Most of the lateral deviations of the uterus described by pathologists are merely exaggerations in a diseased and hypertrophied organ of this natural position or direction." Mr. Huguier, I may mention, attributes congenital latero-version to congenital shortness of one of the round ligaments.

Therapeutically, the secondary nature and importance of uterine displacements, when not carried to an extreme degree, may be undeniably proved by the results of practical experience. For very many years I have completely ignored, as far as direct treatment is concerned, the existence of displacement in the numerous cases of uterine ailment which I have been called upon to treat. Looking upon the displacement as a mere congenital, physiological, or pathological concomitant of the inflammatory disease which I all but invariably find to exist when uterine suffering is present; or considering it to be the direct result of enlargement of the body or neck of the uterus, inflammatory or other, I have generally looked upon it as a mere symptom, and acted on this view. Thus, as a rule, I have thrown aside pessaries, bandages, and all artificial or mechanical agencies for the sustentation or straightening of the prolapsed or deviated uterus; accepting these conditions, and the distress they may occasion, as symptoms not in themselves requiring any particular treatment beyond partial rest. My great aim has been to remove what I consider the cause of the pathological prolapsus, retroversion, or anteversion; be that cause relaxation or disease of the vagina, congestion, induration and hypertrophy, or passive enlargement, either of the body or neck of the uterus.

I find that when these morbid conditions can be thoroughly and completely removed by treatment, and when time has been allowed to Nature to restore the integrity and functional activity of the recently diseased organs, one of two things occurs—either the displacement ceases,—the uterus ascending to its natural position if prolapsed, and returning to its normal intra-pelvic situation if retroverted or anteverted,—or it does not. In either case, however, in the immense majority of instances,

the patient is perfectly freed from pain, or even discomfort, and ceases to complain of the symptoms of uterine suffering.

When the uterus returns to its physiological position, as a result of the removal of the morbid condition which produced the displacement, the subsidence of pain and discomfort is a fact which may be explained either by appealing to the displacement, or to the inflammatory lesions which accompanied it. This alternative, however, is no longer admissible when the displacement—prolapsus, anteversion, or retroversion—remains after the removal of the inflammatory lesions; all pain and discomfort at the same time disappearing, and this I am constantly witnessing.

I speak within very reasonable limits when I say that scores and scores of my former patients, who had for years suffered from uterine ailment before they were treated by me, are now living like other people, perfectly free from inconvenience of any kind, walking, standing, running, and going through all the ordinary ordeals of life, *although the uterus has remained displaced*. It has either remained lower than normal, or has kept in anteversion or retroversion, and in some to a considerable extent. These women are, however, otherwise sound, free from any inflammatory lesion, and the displacement consequently gives them no more trouble than do the congenital and physiological displacements which I described in my last communication.

Thus taught, thus enlightened by anatomical and physiological data, and by therapeutical experience, when women who are wearing bandages, pessaries, &c., for displacements apply to me, I commence by removing them—*temporarily*, as I tell the patients. I then study minutely the state of the uterine organs, and generally find a very tangible cause for this painful displacement in the shape of some of the diseased conditions which I have enumerated. These I make it my object to remove, at the same time carefully regulating the general health, treating all local complications of bladder, bowels, &c., and enjoining partial rest and repose. I tell the patients to bear the annoyance and pain occasioned by the displacement as a temporary symptom of their disease, as they would bear the pain and discomfort of a sprained or of a broken leg. All disease removed as far as possible, I ask for time,—for three, six, or twelve months passed at home under general hygienic and dietetic discipline, in order that Nature may be enabled to come to the patient's assistance, to fine down swelling, and to restore healthy tone and action. That period passed, if the displacement still persists and still proves a source of discomfort, I myself am ready to sanction the return to the bandages and pessaries. Not one out of fifty, however, of my patients has ever occasion to resume these mechanical means of treatment when they have gone through the above ordeal. The necessity ceases with the diseased condition that occasioned it, and the bandages, abdominal and other, as also the pessaries, are all but invariably thrown aside for ever.

In the preceding remarks I have purposely ex-

cepted severe cases of displacement. There are cases of prolapsus or procidentia uteri, in which all the means of sustentation which the uterus naturally presents have been so strained and weakened, and in which the vaginal outlet is so loose and open that the uterus will fall when the patient is in the erect position, and no treatment can restore the healthy tone of the parts involved so as to admit of the uterus being retained *in situ*. When this is the case, like other practitioners, I resort to mechanical agencies, but principally to extra vulvar pressure and support. All intra-vaginal pessaries, in my experience, give rise to irritation, and are consequently objectionable, and to be dispensed with if possible. Complete procidentia uteri is principally observed in the lower classes, and is evidently the result, generally speaking, of their habit of being up and about soon after their confinements, when the uterus is much too heavy.

Retroversion, when extreme, and attended with considerable non-reducible enlargement of the uterus, is also a most unmanageable form of ailment, and must likewise be excepted from the above remarks. It may remain as a serious morbid condition when all inflammatory disease has been removed, blocking up the rectum, and occasioning considerable distress by pressure; as does retroversion in pregnancy as soon as the displaced uterus has attained a certain size. The mention of this intractable morbid condition leads me back to the consideration of Dr. Simpson's fixed intra-uterine stem pessary.

Holding, as I do, the views above enunciated, my readers will at once understand that I see no occasion whatever for the use, either of the stem pessary, or of any other, in the more ordinary cases of retroversion and anteversion. Thinking, as I do, that these displacements are often met with as mere temporary results of removable morbid conditions; or that they are either physiological conditions, or non-important traces—remains—of past pathological states, why should I torment my patients with mechanical remedies, the presence of which is often attended with suffering and accidents, and occasionally with dangerous, or even fatal, consequences? In the more severe forms of retroversion, however, to which I have just alluded, I would gladly avail myself of the stem pessary, other means failing, had I any confidence in its efficacy, and were I convinced that its use was free from danger. I have seldom, however, resorted to it, because I think I have reason, even from my own limited experience, to believe it to be inefficacious in such cases, the displacement returning as soon as it is removed; and because the experience of others shows that it is a dangerous remedy; especially, I should say, in this very class of cases, in which the strain on the intra-uterine extremity must be very great.

I have always treated the uterine cavity with great respect, owing partly, no doubt, to a painful lesson which I received long ago, whilst house-surgeon to M. Jobert de Lamballe at the Hôpital St. Louis. A fine young woman, twenty-six years

of age, died under my charge from acute metro-peritonitis, the result of an injection into the uterine cavity. She was suffering from enlargement of the womb, and it was only discovered after death that the cause was the presence of a small fibrous tumour. The os internum being thereby opened, the injection penetrated freely into the uterus, and caused the inflammation which rapidly destroyed her. When, also, I began to use the uterine sound, at Dr. Simpson's suggestion, I soon found that as long as it occupied only the cervical canal there was usually no pain; but that as soon as it passed the os internum, and touched the uterine mucous membrane, there was always pain, sometimes faintness, and often a discharge of blood. These facts, combined with my theoretical and practical views, have contributed to make me very cautious in the experimental use of the stem pessary. Nor do I regret that it has been so, seeing the fatal results which have recently attended the practice of the Paris surgeons.

With their experience before me, and the knowledge that other fatal cases have occurred in England, I am inclined to think that I shall henceforth be even still less disposed than formerly to resort to the intra-uterine method of treating retroversion of the uterus. It is fortunate, therefore, for me that the experience of many years has led me to the conclusions which I have embodied in the course of this communication, viz.—

That uterine displacements, in the immense majority of cases, require no special treatment; that in those extreme cases of anteversion and retroversion in which it really would be desirable to straighten the uterus by mechanical means, the intra-uterine pessary, when borne, is of but little if of any use, as the displacement usually returns as soon as it is extracted; and that in complete prolapsus vulvar bandages afford the support the easiest borne, and the most efficacious; combined occasionally with an abdominal bandage, with a view to take off intestinal pressure.

Grosvenor-street.

FURTHER OBSERVATIONS ON DR. HENRY BENNET'S REVIEW OF THE PRESENT STATE OF UTERINE PATHOLOGY.

By W. TYLER SMITH, M.D.,

PHYSICIAN-ACCOCUCHEUR TO ST. MARY'S HOSPITAL.

It was not my desire to have made any reply to the Note of Dr. Henry Bennet respecting my observations on his recent papers. In my remarks, I correctly stated certain bad consequences which I had seen follow the treatment of uterine disease by destructive caustics, or, as Dr. Bennet terms them, "vitality modifying agents." Dr. Bennet denies, in the strongest terms, that any of the cases I cited could have been his own. "I have no hesitation whatever in stating," writes Dr. Bennet, "in the most peremptory and decided manner, that no cases of this description which Dr. Tyler Smith may have seen, either at St. Mary's or elsewhere, were or have been cases under my care, and I defy him to prove to the contrary."

Notwithstanding Dr. Bennet's defiance, I should have been quite content not to have pushed the matter further. I did not wish to say whose cases they were to which I had alluded. It seemed to me sufficient that the cases had occurred, and, with the facts before the profession, I should have been well satisfied to leave the matter in their hands. Dr. Bennet contends for the *use*, and, as he states, against the *abuse* "of caustic potash, or the actual cautery, the action of which are identical." I have contended that their *use* at all, in non-malignant ulceration, induration, and hypertrophy, is an *abuse*, and I have given the facts upon which my opinion was grounded.

The letter of Dr. Boulton, as well as other indications, show me, however, that if I allow Dr. Bennet's challenge to pass unnoticed, it will be inferred that his assertions are correct, and that the medical practitioners of Paddington will be blamed for any cases of mutilation from the action of caustics which I have witnessed, or may meet with for the future. I feel obliged, therefore, to state, that the cases I have seen at St. Mary's Hospital, in which the os or cervix uteri has been mutilated, have, with one or two exceptions, been cases formerly under the care of Dr. Bennet, and treated according to his method, at the Western Dispensary. The case related in my paper as having come under my notice during the month of February last, in which the vaginal portion of the cervix uteri was destroyed, and the canal of the cervix obliterated, had been two years under his treatment at the Western Dispensary. The patient was sent to me from a neighbouring dispensary, and had been told the state in which she was by other medical men. Since my former paper, the medical officer of a dispensary in the district, and one well qualified to give an opinion, has informed me that in the course of one year he met with seven or eight cases of mutilation of the os or cervix in cases which had formerly been at the Western Dispensary. Thus I have not criticized the practice of tyros, or those who may have been inexperienced, but those masters in the use of the stronger escharotics, whose inflated vanity and egotism would seem to claim a monopoly of all knowledge relating to uterine disease.

My opinions have not been hastily formed, or put forth with any wish to engage in controversy with Dr. Bennet. In the work I published upon "Leucorrhœa," in the beginning of last year, I put forward the views I have recently advanced, as the following passage, to every word of which I still adhere, will testify:—

"In this place I wish to say a few words on the use of violent caustics in the treatment of uterine disease, and particularly of the so-called ulceration and hypertrophy of the os and cervix uteri. One point appears to me to have been almost lost sight of in the use of these applications. The uterus has to pass physiologically through great changes of growth and development in the course of pregnancy, parturition, and the return of the organ to the unimpregnated state. Of all the changes which occur to the uterus during the evolution and

devolution of the organ before and after delivery, those which occur in the os and cervix uteri are perhaps the most remarkable. In the great majority of patients who present themselves for treatment, it must not be forgotten that the uterus will have at some future time to pass through these changes. This circumstance alone appears to me to furnish a very strong *a priori* argument against the use of caustics sufficiently strong to cause disorganization of the os and cervix uteri. My own opinion is, that the potassa fusa, the potassa cum calce, the acid nitrate of mercury, the chloride of zinc, and the actual cautery, are on this account rarely, if ever, admissible in the treatment of non-malignant disease of the uterus. It has been said that an hypertrophied cervix can be melted down by the use of these destructive agents; but this simply means that portions of the os and cervix uteri may, like other soft tissues, be destroyed by caustic; for it cannot be contended, that when violent escharotics are applied to the uterus the morbid elements are alone affected, the proper structure of the organ remaining intact. The evils of such applications are, as it appears to me, some of them immediate; others are remote. It is the fact, that in the use of these violent caustics, the death of the patient has been caused by perforation of the vagina behind the posterior lip of the uterus, and the occurrence of fatal peritonitis. Pelvic inflammation, ending in abscess, is another unfortunate result of this practice. I have also known death to occur from cutting off portions of an hypertrophied uterine lip with the knife. No doubt some practitioners apply the more heroic caustics with such care as to avoid any immediate risk; but I doubt if it be possible, with the utmost caution, to prevent ultimate mischief. In Case X., page 70, I have related the instance of a lady treated by a very skilful practitioner, in whom the melting down of the os and cervix uteri was followed by extensive giving way of the cicatrices, upon the occurrence of pregnancy. I have seen other cases of a similar kind. I have also met with cases in which the firmest adhesions have formed between the os uteri and the vagina, after deep cauterizations. Three years ago, a patient came to me who had apparently suffered from leucorrhœa and hypertrophy of the cervix uteri for many years, and who at length, under the care of a practitioner of large experience in a distant colony, had had a prolonged anterior uterine lip excised, and the cervix uteri treated liberally with potassa fusa and potassa cum calce. This patient was seen separately by Dr. Locock and myself, and it was found that the os uteri had, in cicatrizing, completely adhered to the upper part of the posterior vaginal wall. The case was sent to England as one of carcinoma uteri; but the appearances which were considered to indicate cancer really arose from hypertrophy, and the irregular cicatrizations consequent upon excessive cauterization. In this case the shape of the os and cervix uteri was entirely lost. The subject of it will probably never become pregnant; she has not done so up to the present time; but if she should conceive,

the os uteri will have to be torn from the rectum. The upper part of the vagina is in much the same state as we sometimes find it after instrumental labour, in which sloughing and cicatrization have taken place. In other cases the os uteri has been completely closed by adhesive inflammation, after the use of potassa fusa, rendering it necessary to puncture the os, to relieve the uterus of retained menstrual fluid. One patient, suffering severely from long-standing scrofulous disease of the elbow and knee-joints, and bearing the most extensive marks of scrofulous ulceration, came to me at St. Mary's Hospital, from the country, in whom the whole of the lower part of the cervix uteri had been removed by the frequent application of caustic potash, though the leucorrhœa had evidently depended on the constitutional disorder. I have at the present time an in-patient, in whom the whole of the lower part of the cervix was formerly destroyed by potassa fusa, but she still suffered from profuse leucorrhœa on her admission.

"Such are some of the evils which follow the use of the more violent escharotics in the treatment of ordinary uterine disease. It may be asked, are there no positive advantages in their use, which outweigh the disadvantages of such accidents? In my opinion, there is no good which can be effected by the more powerful caustics which cannot be accomplished by the nitrate of silver, or by other means. It is true that, by the prolonged application of the nitrate of silver, loss of substance may be caused, but this is far less likely to occur with lunar caustic than with the more powerful escharotics. It is also true that some practitioners apply the more violent caustics so lightly that they do not exceed the milder medical action of the solid nitrate of silver; but in such cases it would be quite as well to use the safer remedy where a caustic is required."

I may mention that Dr. Bennet thinks I have overrated the importance of secondary syphilis as one cause of local uterine disorder, and he objects to the passage in which I state it as my opinion, "that there is a large amount of undetected syphilis in the works of Dr. Whitehead and Dr. Bennet." In reference to this, I beg to say that I might have uttered a more positive opinion as regards Dr. Bennet—an opinion derived in the following way. Cases of leucorrhœa have come to me at St. Mary's Hospital, which had been under the treatment of Dr. Bennet at the Western Dispensary, and which had been cured at the time, but had subsequently become as bad as ever. I have found, upon close inquiry, that syphilis had formerly existed in some of these cases, or that they had given birth to children affected with secondary syphilitic disorder, and I have seen them get permanently well under an antisiphilitic regimen, combined with local treatment. I believe Dr. Bennet is equally in error in ignoring, to the extent he does, the influence of ovarian disorder and uterine displacements in the production of uterine disorder, and I consider his limited vision, ranging only between inflammation and its results and the cervix uteri, as calculated at the present

time to impede rather than promote the advance of uterine pathology and treatment.

Upper Grosvenor-street.

CONTRIBUTIONS TO PRACTICAL SURGERY

By JOHN ERICHSEN, Esq.,

PROFESSOR OF SURGERY AT UNIVERSITY COLLEGE, AND SURGEON TO THE HOSPITAL.

No. IV.

ON CONTRACTIONS OF THE KNEE, WITH THE DESCRIPTION OF A NEW INSTRUMENT FOR THEIR CURE.

In a former communication to this journal, (*THE LANCET*, vol. ii. 1855,) I discussed the different kinds of contraction of which the knee-joint is susceptible, their causes and treatment. In the present paper my object is to direct attention to a peculiar form of displacement, or partial dislocation, of the head of the tibia that frequently accompanies this deformity, and to point out a successful mode of treating it.

Contraction of the knee-joint, so far as the deformity is concerned, may be of two kinds—1st, it may consist of simple flexion of the leg or the thigh, at a greater or less angle, and with more or less mobility, according to the degree of ankylosis—2nd, in addition to this, there may be horizontal displacement of the bones, the head of the tibia being thrown backwards, the femur and patella remaining *in situ*, but apparently projecting more than is natural.

In examining a case of contraction of the knee-joint, the patient should be placed on his face, with the thigh extended. The leg on the affected side will then be raised more or less perpendicularly, and the amount of contraction may be judged of by the angle that it forms with the thigh. The degree of mobility also may readily be ascertained. In this way a more correct idea of the amount of contraction can be obtained than by examining the patient whilst lying on the back, when, in consequence of the thigh being flexed on the abdomen, the extent of the angular deformity cannot be so well determined.

When the contraction or ankylosis is of the slighter or simpler kind, the knee being merely bent and fixed at an angle, without any displacement of the osseous surfaces from one another, forcible extension under chloroform, with or without previous section of the hamstring tendons, will usually readily bring the limb into a straight position; but if the contraction be accompanied by horizontal displacement, the head of the tibia being thrown backwards, the limb, though tolerably straight, will continue deformed and weakened. It is to this condition of partial dislocation of the knee-joint that I wish to direct special attention.

The ordinary form of extension instrument commonly used in cases of contracted knee, and consisting of two iron plates separated by means of an extending screw, is probably more faulty in its mechanical construction than any other kind of apparatus used in orthopædic surgery. This arises from an attempt to act upon the knee-joint

as if it were a *fixed* centre, instead of one easily displaced by the least horizontal change of position occurring between the extremities of the bones composing it.

When the ligaments, by the aid of which the normal condition of a joint is maintained, have become softened and relaxed,—in the first instance by the diseased action that has been going on in the joint, and afterwards by the unequal strain to which they are subjected by the contraction,—they readily yield to any force favouring the displacement of the bones in a direction opposite to that of their strongest attachments. Thus in cases of ordinary contracted knee, the weight of the body, added to the force exercised by the flexors of the leg, is sufficient to increase the amount of deformity, and, by separating the osseous surfaces of the joint, predispose it to displacement in its horizontal plane.

If muscular power, acting through the medium of such levers as are offered by the form of the tibia and femur, were alone sufficient to produce horizontal displacement of the bones, then an apparatus applied to the limb in such a manner as to antagonise their contractile action and to extend the extremities of each lever, would be amply sufficient to straighten the limb and secure natural action of the joint; but the ligaments themselves undergo a change in the direction of their *passive* force, which, upon the application of mechanical pressure to any part of the levers formed by the tibia and femur, becomes an active power in creating axial displacement.

The disturbance being in the inverse proportion to the distance at which the power is applied, it necessarily follows that any instrument, taking its resistive surface along the posterior border of the tibia and femur, must act most powerfully in *producing backward displacement* of the head of the tibia.

It must also be borne in mind that although, theoretically, the extremity of each lever—the femur and the tibia—is supposed to separate during the process of mechanically restoring a contracted knee to its straight condition, practically the tibia alone undergoes change of position, the femur becoming, from its attachment to the pelvis, a fixed point for the instrument to act against. The head of the tibia has therefore a tendency to pass backwards each time an attempt is made to lessen the angular condition of the limb. This alone would prove the unmechanical principle upon which the older forms of knee-instruments are based, and at once explains the advantages derivable from any apparatus acting in such a manner as to replace the head of the tibia, at the same time that it is extending the angle of the leg.

The instrument, of which the following sketch (fig. 3) is a good representation, was designed and constructed by that excellent surgical mechanician, Mr. Bigg, to whom my best thanks are due for the way in which he carried out my ideas, and for the many valuable suggestions with which he has favoured me on this as on many other occasions, when I have required his assistance in the adaptation of mechanical contrivances to orthopædic cases. By it the important points alluded to are

secured; and not only does it become an invaluable agent in extending the knee, but likewise offers remarkable facilities for replacing the head of the tibia should it have become luxated posteriorly, either as the result of disease or by the employment of ordinary extension.



FIG. 1.

To render its mechanism intelligible, the first diagram (fig. 1) represents the limb of a patient whose tibia has become displaced backwards, the angular contraction having been remedied. In the centre of the end of the femur and the head of the tibia, two letters (X and Z) are placed to designate the axis of each bony head, beneath and above which the displaced joint has formed its abnormal axis. The dotted lines represent the leverage formed by the cylindrical surface of the tibia and femur. The arrows are placed in such a direction as the bones would take in resuming their normal position.

It will readily be seen that any instrument capable of acting in the mechanical directions shown by the arrows, would accomplish not only the restoration of the joint, but extend, if contracted, the extremities of both femur and tibia.

The third figure shows the application of the instrument by which this can be effected.

An additional advantage that this instrument possesses over any other with which I am acquainted, is the application of spring power, by means of which flexion of the knee becomes an element towards its restoration.

Instead of arresting muscular action, and thus giving rise to atrophy of the limb, movement is conducive to the perfect action of the apparatus, so that the patient experiences but little inconvenience from its use, all the ordinary positions assumed by the knee in walking, sitting, or standing, being preserved.

A young gentleman, at present under my care, who has worn this apparatus for several weeks, is enabled to use the limb without the slightest difficulty for all ordinary purposes. In order that this might be accomplished with as little inconvenience as possible, Mr. Bigg has contrived to make the instrument so light that it offers no obstacle to the patient's movements.

By this form of apparatus, then, three important points are secured—viz. replacement of the head of the tibia; extension of the angle of the leg; and free muscular action during the period of treatment.

FIG. 2.

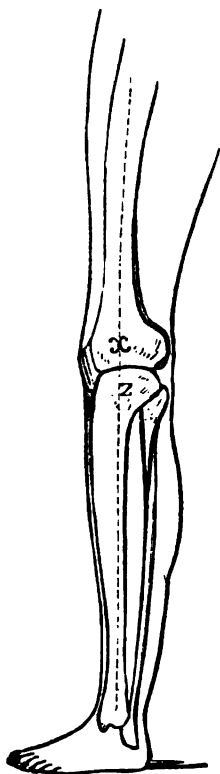


Fig. 2 represents the bones placed in their normal position, with the axis of the knee-joint restored, and each centre in its relative position.

FIG. 3.

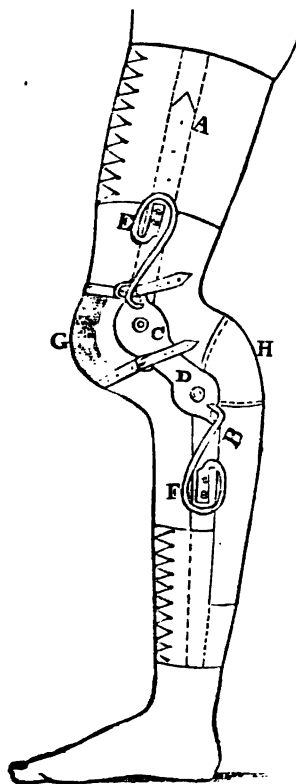


Fig. 3. A and B are three levers composed of metal, corresponding in their direction to the perpendicular position of the femur and tibia.

C and D are two axes, placed exactly coincident with the centres of the articular ends of the bones.

E and F are two powerful springs, whose action takes place in opposing directions, similar to the arrow-indicators in fig. 1. Thus F presses the lever B in an anterior direction, bearing the end of the tibia forward, whilst E presses the lever A in a posterior direction, bearing the end of the femur backward. As C and D are found acting above and below the actual axis of the knee-joint, they mutually influence the point formed by the apposition of the heads of the tibia and femur; and as it has already been explained that the femur really offers a fixed resistance, and the tibia moves beneath it, the head of the latter bone is turned anteriorly in a semi-circular direction consequent on the upper centre (C) being a fixed point, and the lower centre (D) rotating around it.

G is an elastic knee-cap.

H, a padded plate.

When the ligaments are tense, there is a chance of pressing the anterior surface of the tibia against the posterior surface of the femur.

fly obviated / having the shaft (A) made to elongate,

when the centre (C) being a little lowered, pushes the lever (B) downwards, carrying the tibia with it, and thus separating the osseous surfaces of the joint.

Wellbeck-street, Cavendish-square, May 1856.

NOTES ON THE HISTORY, PROPERTIES, AND USES OF ACONITUM NAPELLUS.

By ROBERT JACKSON, M.D.

THE following notes were drawn up, and the experiments made a considerable time since, when investigating the properties of aconite.

From the earliest Greek poets we learn that aconite was sent as a scourge to the human race. From the same source we are told of its fabulous origin, springing from the foam dropped from the mouth of Cerberus in his struggle with Hercules, or from the corrupt matter flowing from the vulture's wound in Prometheus' body.

"Unde Prometheus de corpore sanguineus ros
Aspergit osates; et dura aconita creant oca."

Pliny asserts that Hecate, the infernal goddess, being expert in the composition of poisons, discovered aconite. The Greeks make frequent reference to a most virulent poison, called *akoniton*; but this term appears to have been in the earlier ages applied to poison in general. Later, however, a plant growing abundantly in Heraclea, a city of Greece, near a place, or upon cliffs, called "Aconas," was from that circumstance called Aconite.

"Quis quis nascuntur dura vivacida cante
Agrestes aconita vocant."—OVID, *Metamorphoses*.

Theophrastus, born 371 years before Christ, is perhaps the first author who specially refers to or describes a plant called aconite. He gives two kinds, both growing like grass, &c. Dioscorides, a physician of Anaxarha, in the first century, also gives two species of aconite. The first—leaves, three or four, like the cyclamen or cucumber; stalks, a cubit length; root, like a scorpion's tail. The second—leaves like those of the plane-tree, but divided by deeper indentations; smaller and darker stalk, like the fern; height, a cubit or more; seed in pods, somewhat oblong, root of a dark colour, and representing the cirri of the animal called *aquilla marina*.

Various names are accorded to aconite, either from its power or the fancy of observers. Dioscorides calls it Cammoron, from the cruel death it causes; Pardalianchus, pard or leopard-killer; Theripponon, or brute-killer; Cynoctonon, or dog-killer; Lycoctonon, or wolf-killer, hence wolfsbane; Napellus, from its napiform-root; Cucculus monachi, monkshood, &c.

As early as 1544, considerable doubt existed whether the A. Napellus, then known, was the plant described by the earlier authors. Of the two species described by Dioscorides, the Pardalianchus and the Lycoctonon, the first is admitted to be very rare; of the second, it would appear three varieties were given; but owing to part of Dioscorides' work being lost, we are deprived of two of them, which two we are, however, told were much in use amongst "phisitions," while hunters used the other. Hermolaus and Marcellus testify to this loss. Bauhin in 1541, L'Obelius and Gerard in 1597, appear,

however, to trace the *Lycocotonon* of Dioscorides and Bœcler in 1729, Dodon, Sprengel, Woodville and many others, appear to be agreed that the second species described by Dioscorides, the *Lycocotonon*, is the *A. Napellus*, wolfsbane, or monkshood of the present day.

A great many varieties of aconite are mentioned and described by different authors; and Haller curiously relates that in Poland, Russia, Lapland, &c., the *A. Napellus* is considered harmless; and Lucrisis even says it fattens geese and quails; while some varieties are said to be eaten as a salad in Sweden.

Aconite as a most virulent poison lacks no want of evidence. Upon scorpions its power is early mentioned:—

"Only the touch of chokepard, aconite,
Bereaves the scorpion both of sense and myte."

The huntsmen of the mountainous districts of Greece, simply by sprinkling the juice on their arrows, obtained a sure and rapid poison; and Pliny remarks that of all poisons aconite is the most rapid; and were it not for it, the countries infested by tigers, panthers, &c., would soon be overrun by them.

As a poison to the human race, we have also early evidence. Calpurnius Bestia was accused of killing his wives by aconite. The tyrant Agatharchus killed many of his people with aconite. Theopompus mentions that Clearchus of Heraclea killed many of his guests by giving them aconite. This poison was also mixed in the fatal cup of Aristotle. The juice of aconite, we are also told, formed the poison cup presented to the old men of Ceos, when no longer useful to the state. Aconite was also used by many barbarous nations in poisoning the streams and wells of their enemies. Dr. Wallich states the attempt was actually made in the Nepal war, at Hotoura. Some authors assert that the plant is poisonous when held in the hand, and the effluvium from the full-grown flowers is said to be deleterious.

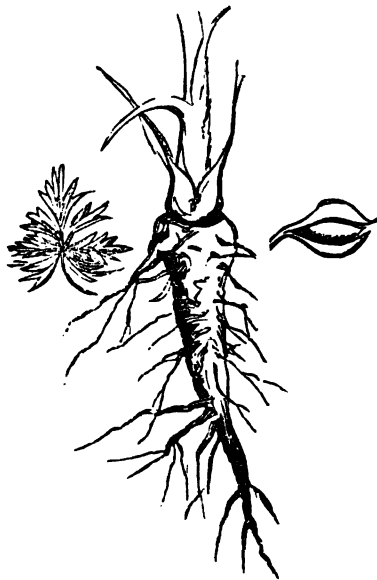
The symptoms of poisoning by aconite are fully detailed in the cases on record; and these cases have generally arisen from an overdose of the extract or tincture, or from eating the root in mistake for horseradish. The difference of the roots will at once be seen; still, to an uneducated eye, a sufficient resemblance certainly exists to account for the mistakes that have been made, especially if the roots have been dug up in winter, when the leaves have died down.

Horseradish belongs to the natural order *cruciferae*. The root is long-shaped, fusiform, very gradually tapering, very difficult to be dug up entire; fleshy and succulent, with few fibres; has a light-yellow colour, and a peculiar and pungent taste.

Aconite belongs to the natural order *Ranunculaceae*. Its root is napiform, or swelled above and tapering abruptly downwards: very short in comparison with horseradish; giving off many fibres. Colour of a dark-brown. Has a sweetish taste, soon producing tingling of the lips and mouth when eaten.



Horseradish Root.



Aconite Root.

The distinguishing difference of aconite may be said to consist in its *short, napiform, fibrous, dark-brown root*. The leaves and flowers can never be mistaken.

The following cases abundantly prove the power of aconite:—

Willis mentions a case in which the chief symptom was maniacal delirium.

Morceus, a Swedish author, relates a case in which a man eating of the fresh herb became delirious. His surgeon, not believing in the power of the plant, ate of it, and died, while his patient recovered.

Plenck alludes to a man who died a maniac, a night and a day after eating of the tender leaves of monkshood. Another person, eating likewise of the same, was saved by vomiting; a third, however, died, after being comatose. Seven flowers of the *A. Napellus*, says the same author, killed a full-grown man.

Bœcler says, when the *A. Napellus* is eaten, the lips become swollen and inflamed, the tongue protrudes, the eyes swell and start, the body becomes livid, vertigo and convulsions are frequent, and death ensues.

Van Helmont speaks of its power of debilitating the mental faculties. In the *Medico-Chirurgical Review* for 1837, a case of idiocy is supposed to have arisen from eating the plant.

Mathiolus relates of four criminals who took the root, that two recovered, after much suffering, and two died. One of them took two doses of one drachm each, with an interval of an hour and a half; three hours after, he had great weakness and weariness, followed by convulsive movements of the mouth, eyes, &c., then stupor and death. The other, at the end of two hours, had vertigo, oppression of the brain, swelling of the body, livid and ghastly countenance, eyes protruding from their sockets, and death by horrid convulsions.

Dodonæus narrates the death of five persons at Antwerp, who all died from eating aconite by mistake. Dr. Turner also states that several Frenchmen who partook of the plant all died in the course of two days, except two, who were saved by vomiting. In the "*Mémoires de l'Académie Royale des Sciences de Stockholm*," three cases are related of the flowers being poisonous, one ending in death. Murray, of Gottingen, mentions three deaths by aconite in Sweden. Pereira relates the case of Mr. Prescott, who, with his wife and child, ate of the root for horseradish. His chief symptoms were burning and numbness of the lips, mouth, and throat, extending to the stomach; vomiting, cold extremities, cold perspiration of head, eyes glaring, violent headache with trembling, lips blue, mind not affected, neither cramps nor convulsions; death in four hours. The wife and child recovered.

Two cases in the "*Hortus Medicus*" of Graves and Morris are given, where two men ate of the *boiled root*; one died in three hours, the other vomited and recovered. The symptoms in both began in a quarter of an hour; burning sensation in the throat, pains in the stomach, convulsive contractions in the face and limbs, and insensibility. The one who died became strongly convulsed, with continued distortion of the limbs and face, teeth and hands clenched, eyes partly closed, face of a livid purple, with white blotches.

— Smith (*Foreign Medical Review*) relates the case of a female who ate of the root; loss of power in the limbs, sickness, convulsions, and death.

Some leaves and a few flowers proved fatal to a child aged twenty-one months; death in seven hours. The root eaten by a child aged thirteen months; became sick, pale, pulse slow and intermittent, *pupils dilated*, stupor, pain in the stomach. Stimulants recovered him.—*Journal de Chem. Méd.*

In 1821, Widow Broscart, her son, and two others, drank of the tincture of aconite, prepared by mistake. Only one of these escaped. The others suffered great agony; sensation of burning in the throat and stomach, vomiting, diarrhoea, and violent colic; tongue as if getting larger, and death in about two hours and a half. The post-mortem in these cases throws little light on the subject. Some redness of the intestines and venous congestion existed.

The power of the alcoholic extract is well shown in the cases related in the *Encyc. des Sc. Méd.*, April, 1839, by M. Pereyra. These cases were under medical treatment in the Hôpital St. Andre de Bordeaux. All had been taking the extract, which, being finished, a new supply was procured, but so powerful that four grains killed a man in three hours. Another was much indisposed by taking two grains. The symptoms of another, who had taken five grains, were—burning sensation in the mouth, vomiting and convulsions, pain in the head, limbs icy cold, pulse slow and unequal. At ten next morning he was extremely pale, uneasy expression, *pupils contracted strongly*, heat in throat, &c. He recovered.

M. Bolardini (*Ed. Med. and Surg. Journ.*) relates that on the 11th June, 1840, twelve persons, suffering from skin diseases, swallowed each two ounces, six and a half drachms of the juice of monkshood, in mistake for that of scurvy-grass. An old man, aged sixty, was the first victim. His respiration became impeded, vomiting came on, and he died in a few hours. Two women were soon attacked with convulsions, prostration of strength, and paralysis; they both died in two hours. The other nine were all violently affected, but recovered by remedies. They suffered great prostration of strength of body and mind; pale and altered countenance. *The pupils of the eye were greatly dilated*; vertigo, headache, vomiting, pulse slow and feeble. The post-mortem of the three fatal cases showed effusion at the base of the brain, venous congestion, &c.

In the case related by Mr. Sherwin, in *THE LANCET*, the tincture produced fixing and protruding of the eyes, with *contracted pupils*, livid and rigid countenance, hands cold and pulseless, impeded breathing, &c. She recovered.

One drachm of Fleming's tincture has proved fatal. Twenty-five minims, in another case, caused paralysis in one hour; and death some time after. In another, fifteen minims caused much distress, loss of power, insensibility, &c., but the patient recovered.

Many other cases are on record of poisoning by aconite, and they terminate with the recent tragedy at Dingwall, where three out of five persons died from eating the root in mistake for horseradish. The symptoms are not well related; but burning of the mouth and throat were much complained of, and great suffering generally.

The effect of aconite on animals is in all respects similar to that on man. Orfila, Brodie, Pereira, Bonet, Haller, and others, relate their experiments, showing a train of symptoms similar to those ob-

served in my own experiments, where, in death produced by the various preparations of aconite, and introduced into the system in different ways, the symptoms were agitation and distress, backward movements, paralysis, and loss of sensation, commencing generally in the hind legs, impeded

breathing, foaming at the mouth (in cats and dogs), stupor, coma, convulsions, and death.

The following table will show at a glance the rapid action of the poison, and the difference in the strength of some of the extracts. The fresh juice of the root acted with the greatest rapidity.

Table of Poisoning by the different Preparations of Aconite.

No.	Preparation used.	Animal.	Introduced into	Affected in	Death in
1	7 gra. of Morson's extract.....	Rabbit..	Stomach	1 minute; loss of power, &c.....	3 minutes.
2	7 gra. own extract.....	Rabbit..	Stomach	3½ minutes; fell on side.....	6 minutes.
3	7 gra. Smith's extract.....	Rabbit..	Stomach	18 minutes; backward movements.....	2 hours.
4	2 gra. Morson's extract.....	Rabbit..	Abdom. cavity.	{ 2 minutes; legs paralyzed, &c.; } gradually recovered.....	..
5	5 gra. ".....	Rabbit..	Abdom. cavity.	½ min.; affected; 7 mins., loss of power.....	8½ minutes.
6	10 gra. Smith's extract.....	Dog	Thorac. cavity.	3 minutes; unable to stand.....	12 minutes.
7	6 gra. German extract.....	Cat.....	Cellular tissue.	12 minutes; hind legs paralyzed.....	4 hours.
8	10 gra. Morson's extract.....	Cat.....	Cellular tissue.	15 minutes; legs paralyzed.....	38 minutes.
9	20 gra. own extract.....	Cat.....	Cellular tissue.	25 minutes; convulsions.....	54 minutes.
10	10 gra. Smith's extract.....	Rabbit..	Brain	30 minutes; paralyzed.....	60 minutes.
11	2 drops juice of leaves.....	Sparrow.	Cellular tissue.	5 minutes; paralyzed.....	3 hours.
12	1 drachm tinct. of dried leaves.	Cat.....	Rectum	4 minutes; uneasy, agitated, &c.....	Recovered.
13	2 drachms juice of root.....	Cat.....	Rectum	5 mins., paralyzed; 14 mins., convulsed.....	23 minutes.
14	6 gra. German extract.....	Cat.....	Rectum	5 minutes; fell on side, &c.....	14 minutes.
15	30 drops prepared juice of root.	Rabbit..	Jugular vein.	Immediate loss of power, &c.....	33 minutes.
16	30 drops, fresh.....	Rabbit..	Jugular vein.	Immediate loss of power, &c.....	10 minutes.
17	30 drops tinct. of dried leaves.	Rabbit..	Stomach	Immediate loss of power, &c.....	12 minutes.
18	30 drops tincture of seeds.....	Rabbit..	Stomach	1 hour, loss of power; 4 hours, comatose.....	7 hours.
19	30 drops juice of root.....	Rabbit..	Stomach	Instant spasm (tetanic).....	2 minutes.
20	Ditto	Rabbit..	Stomach	Instant spasm (tetanic).....	1 minute.
21	30 drops prepared juice.....	Rabbit..	Stomach	3 mins., paralyzed; 7 mins., convulsed.....	12 minutes.
22	1/10 grain of aconitina.....	Rabbit..	Cellular tissue.	7 minutes; convulsed.....	16 minutes.
23	1/20 ditto	Rabbit..	Cellular tissue.	11 minutes; paralyzed.....	19 minutes.
24	1/20 ditto	Rabbit..	Stomach	Instantly paralyzed.....	17 minutes.
25	1/10 ditto	Rabbit..	Rectum	Drowsiness, &c.....	Recovered.

In 13 of these cases, the pupils were noted:—in 5, *contracted*, in 8, *much dilated*. In some of the contracted cases, the pupils immediately dilated on death; and the *dilatation* was always more marked than the *contraction*.

The chief post-mortem appearances were in these cases, great engorgement of the right side of the heart, while the left side was empty. All the venous trunks were full of blood, and the appearances of asphyxia in general were present.

The experiments of Dr. Wallich with the A. Ferox, the Visha, Ativisha, Vish, Bikh, or Bichma, of the Indians, give symptoms similar to the above, but even in greater intensity and rapidity. He found the spirituous extract the most powerful; it produced difficult breathing, paralysis, vertigo, convulsions, *dilatation of the pupils*, and death. One grain of spirituous extract killed a rabbit in nine minutes and a half; two grains killed a strong dog in three minutes, &c. The post-mortem appearances were as above.

It will be observed that the symptoms of poisoning by aconite are very characteristic, and that in all its preparations it is a most deadly poison. The only variety in its action appears to be on the pupil. The observation of Briand (medico-legal) is quite borne out, "Les pupilles sont tantôt dilatées, tantôt contractées, tantôt dans l'état naturel." In Sherwood's case, the pupils were contracted, as also in M. Pereyra's case. In the child aged thirteen months the pupils were dilated, and in Bolardini's cases the pupils were greatly dilated. Dr. Wallich distinctly states that aconite causes

dilatation of the pupil. Dr. Headland, in his recent paper, inclines to the dilatation, and my own observations lead to the same conclusion. In the case recently reported in THE LANCET by Mr. Bone, where the paymaster of the regiment was poisoned by the tincture, there was dilatation of the pupils.

Mr. Dansent, in a letter to the Editor of THE LANCET, in 1837, states that several preparations of aconite had considerable influence in causing dilatation of the pupils, in some cases reported by Dr. Turnbull, and were useful in functional amaurosis. Dr. Turnbull, however, thought this property depended upon the acidity of the preparation used; for when deprived entirely of this principle, he says it dilates the pupils. Geiger and Hesse state that when the active principle (aconitina) is "Portée sur l'œil, elle produit une dilatation de la pupil." The acidity referred to by Dr. Turnbull is probably caused by the aconitic acid also found in the A. Napellus.

In the Pharmacopœias of 1782 and 1788, formulas are first found for some of the preparations of aconite. Aconitina, the active principle, was first detected by Peschier of Geneva, and afterwards by Brandes; then in 1825 by Pallas, and by Geiger in 1832. These authors remark the extreme virulence of this substance; one-tenth of

a grain killed a bird "avec la rapidité de l'éclair."

The ancients were well aware of the use of stimulants in the treatment of poisoning by aconite: rae, horehound, opobalsam, chamæpitys, castor, pepper, garlic, wine, ammonia, &c., all are mentioned. One species, the *A. Anthora*, is said to be an antidote to the *A. Napellus*.

In later days, the same principle of treatment has been carried out, and after emetics, stimulants, —even carried to excess—mustard to the epigastrium, and frictions, have been found the most useful.

The medicinal properties of aconite were early understood and used. Pliny and Dioscorides mention it as an anodyne for the eyes. Galen and Tragus assign a corrosive property to it. Melchion Friceius, of Ulm, used it in tertian and quartan fevers. Boecler, of Utrecht, as a blister.

In 1762, Baron Stoeck used it as a remedy, and found it useful in scirrhus, pain of the joints, ulcers, intermittent and quartan ague, in gonorrhœa, in tic, rheumatism, &c. He gives many illustrative cases.

In Germany and Sweden, it has also been extensively used in rheumatism by Rosenstein, Blom, Odhelius, Ribe, and others. Foderé recommended it in the case of Charles IV. of Spain, in rheumatic gout. Sigmond and Walkins (*THE LANCET*, 1836–1839) gave the extract in quarter-grain doses in deep-seated rheumatic affections. Dr. Gebel (*Med. and Phys. Jour.*) gave two grains, night and morning, in rheumatic cardialgia. Dr. Chandru (*London Med. and Surg. Jour.*) gave two grains of the extract, increased to twelve grains in articular rheumatism. Nysten (*Dic. des Sc. Méd.*) gave thirty-two grains of Stoeck's extract, with great advantage, in rheumatism and gout. Schultze, Vogel, Lombard, of Geneva, Craigie, of Edinburgh, all speak highly of its use in this complaint.

Skey gives illustrative cases of its use in tic (*THE LANCET*, 1836–37.) M. Ribe and M. Delens also testify to its power in relieving facial neuralgia. Mr. Radley, (*THE LANCET*, 1836,) Dr. Burgess, (*London Med. Gazette*), gave it with great benefit in nervous headaches. Brera mixed aconite with hemlock and calomel in angina pectoris. In glandular obstructions, Bergius gave five grains of the extract every two hours; and Dr. Collins, of Vienna, has given half a drachm in the course of the day in similar cases. Aconite has also been given in syphilitic pains, by Borda; in phthisis, by Busch and Portal; in pneumonia, and in diseases of the heart, by Lombard; also in acute enteritis, from its supposed sedative action; as a diuretic, by Fouquier; in many skin diseases, by M. Bielt, Brera, and Professor Tommasini; in herpes, both internally and externally; in lepra, by Avicenna; inveterate psoriasis, by Dr. A. T. Thomson; in erysipelas, (*THE LANCET*, 1836;) by Klifton, of Wittemberg, with calomel, in some of the sequelæ of scarlatina; in amenorrhœa, by Dr. West of Strasbourg; in various diseases of the eye, as opacities of the cornea, cataracts, &c., by

Dr. Turnbull; by the native practitioners of Bengal, as a last resource in cholera.

It is probable the use of aconite will not extend beyond its employment in rheumatism and nervous pain, over which, when taken internally, or applied externally, it exerts a most powerful and beneficial effect, as the cases on record, as well as my own experience, fully warrant me in speaking in the most positive terms.

The tincture of the root, or the active principle, aconitina, mixed with lard, appears best suited for external application, and as such has been used with decided advantage.

The internal use of aconite as a medicine has not become general, owing, probably, to the uncertain action of its various preparations, which depends not only upon the part of the plant used—the age and mode of preparation of the extracts and tinctures—but, above all, upon the varying per-centage of the active principle, aconitina, yielded by different plants, some specimens giving *three times* the quantity others do. Aconite cannot, therefore, be extensively used till we have some certain and uniform preparation.

Notting-hill-square, Notting-hill, April, 1856.

ON THE ADMINISTRATION OF ERGOT OF RYE.

By WILLIAM ROSE, ESQ., F.R.C.S.

ON January 28th last I was called in by a practitioner in a neighbouring town to a woman in labour with twins, one of which had been born thirty-six hours before. From that time there had been a total absence of uterine pain. She was at her full time, in good health, and had borne several children before. There was no urgent symptom whatever.

On examination, I found the os uteri and soft parts in a perfectly lax state. The child was alive; the head presented, but had made no descent from its situation in utero; there was ample capacity of the pelvis, and no impediment to its birth, as far as could be ascertained, beyond simple want of uterine action to expel it. The question appeared to be, whether to turn the child at once after so considerable a lapse of time, or *first* to try the effect of ergot, the conditions being so favourable to its action. The latter was determined upon, and half a drachm of the fresh powder given in tepid water. At the expiration of a quarter of an hour, active expulsive action of the uterus was produced, and, after three pains, the child was born in a vigorous, healthy state. The after progress of the case was completely satisfactory.

High Wycombe, Bucks, April, 1856.

ON THE DETECTION OF STRYCHNINE.

By F. ORACE CALVERT, ESQ., F.C.S.

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HAVING noticed a great deal of discussion in various newspapers as to the length of time after

death in which strychnine can be discovered in the stomach, I am induced to publish the following fact, which will prove that strychnine will resist decomposition in the stomach for the space of nearly one month after death.

In 1849, several dogs of the Cheshire pack of hounds were wilfully poisoned, and one of them was brought to my laboratory for examination. From the description which was given to me of the peculiar symptoms which accompanied the rapid death of these dogs, and also from the fact that I could observe no peculiar pathological appearance in the stomach and intestines, I was led to believe that they had died from the effects of strychnine. I therefore treated the contents of the stomach as follows:—It was put to digest for twenty-four hours, with pure alcohol of specific gravity 0.840, slightly acidulated with pure hydrochloric acid. The whole was then thrown on a filter, and the filtrate concentrated and neutralized. The precipitate which was thus produced was dried and exhausted with alcohol of specific gravity 0.840. This alcoholic solution was evaporated to dryness in a water bath, and the residue treated with very dilute hydrochloric acid. This was again neutralized, and the deposit which fell re-dissolved in dilute hydrochloric acid. This solution was then evaporated to dryness, and the residue treated with the various tests characterizing strychnine, when its presence was clearly indicated.

As the master of the hounds attached great importance to the case, he requested me to obtain a sufficient amount of poison from the stomach of some of the other dead dogs, that I might not only be convinced of the presence of the poison, but might also bring some of the extracted strychnine into court. To enable me to do so several dogs were disinterred and forwarded to my laboratory, and the space of time which had elapsed from the date of death to the time when I submitted them to analysis was at least three weeks, and still I perfectly succeeded in extracting strychnine from the stomach of the dogs, and exhibiting it in the state of crystallized hydrochlorate.

Amongst other persons who witnessed this fact was J. A. Ransome, Esq., Surgeon to the Royal Infirmary, Manchester.

Manchester, May, 1856.

CLINICAL OBSERVATIONS ON SOME FORMS OF URINARY DISEASE.

By HENRY THOMPSON, M.B., F.R.C.S.,

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(Continued from April No., p. 299.)

THE TREATMENT OF URINARY FISTULÆ.

UNNATURAL passages by which the bladder discharges its contents, either partially or entirely, at some adjacent surface, rank amongst the most familiarly known consequences of organic stricture of the urethra. The external openings of these passages are most commonly to be seen at the surface of the perinæum and scrotum, which parts are

traversed by them in various, and often by circuitous routes; less frequently they are observed in the groins, the upper part of the thighs, the adjacent part of the nates, or even above the pubic symphysis. In the last-named situation, the devious channel usually results from incisions originally made to relieve extensive extravasation of urine, and which have never healed; but in the scrotum and perinæum the existence of an abnormal outlet is generally due to a previously existing urinary abscess.

Under the familiar term of Urinary Fistulæ all these conditions are commonly included; some of them simple and easily amenable to treatment; others complicated, and requiring much time, care, and perseverance, in order to attain a successful result. Some are merely narrow channels through nearly healthy parts; others pass through structures greatly indurated, augmented in size and density by repeated deposits of plastic matter, and more or less deformed; and sometimes connected with cavities secreting pus and detaining in their interior some quantity of the urinary secretion. The external orifices of the fistulous passage may be few or numerous; in the latter case being the outlets of sinuous and branching channels springing in process of time from the original track, and giving exit to a number of small streams when the act of micturition is performed; and, lastly, besides the foregoing, there is a class of unnatural passages or openings into the urethra, which have their origin in loss of substance by sloughing from extravasation, or phagedænic ulceration, or as the consequence of violent injury to the parts; and these abnormal conditions are quite distinct in character, results, and in relation to the treatment required, from the two preceding classes.

The mode of arranging and separating the numerous and widely differing lesions comprehended under the general term urinary fistulæ, which is thus indicated, is simple, accurate, and desirable to be recognised in dealing with the subject. It comprehends three very distinct typical forms of morbid condition, each requiring a method of treatment equally distinct in order to be appropriate. The varieties which are thus indicated I propose to consider in a series of papers, the main object of which will be, an examination of the history and practice of plastic operations for the repair of loss of substance in different parts of the male urethra.

1. The first class embraces those cases where, in connexion with the stricture of the urethra, one or more fistulous passages exist, by which the urine traverses the perinæum or scrotum, the surrounding parts being not much altered from their natural healthy condition. In this category may be classed the great bulk of the cases ordinarily met with. Without entering into the pathological history of these fistulæ, they may be chiefly regarded as the result of Nature's mode of affording relief in cases of narrow stricture,—in other words, as safety-valves to the dangerous pressure which is being exerted upon important organs behind the obstructed point; as—while they nevertheless

form fresh complications of the original complaint—most effective guarantees against those more dangerous consequences which would otherwise threaten, in the form of actual retention, or as chronic inflammation, hypertrophy, or perhaps dilatation of the bladder, of the ureter, or even, at last, in organic changes of the kidneys themselves. Thus we may often see patients with large fistulous passages in the perinæum giving exit to all their urine, enjoying extremely good health for years together. But the excessive annoyance, sometimes the pain, besides the tendency to grow worse, which, even in these exceptionably favourable cases, are necessarily present in connexion with urinary fistula, to say nothing of considerations arising in relation to the sexual function, demand the interference of the surgeon to bring about a natural state of things. Now, with regard to the large class which we are considering, as a rule, nothing else is required than to dilate fully the urethra. The urine will flow by the natural channel, and the fistulæ will heal of themselves, if we ensure a free passage from the bladder. There need be no meddling with the fistulæ; the less they are touched the better. Their disappearance is almost certain if we can maintain the urethra in such a condition that a No. 8, 9, or 10 catheter can pass easily into the bladder. This is a proposition which may be regarded now as fully established, and I shall therefore believe it unnecessary to adduce cases illustrative of a result to which I am daily bearing witness. Those patients who form the exceptional instances to this general rule are for the most part weak in constitution, have little reparative power, or are subjects of some chronic disease in addition to stricture of the urethra. The management of such may be conveniently considered with the next class, viz.—

2. Those cases in which the fistulæ pass through tissues which are more or less indurated and deformed by repeated deposits of inflammatory exudation; such being often connected in some part of their course with cavities, the sacs of former abscesses secreting thin or sanious pus.

It may be almost unnecessary to observe that in such instances the primary object must be to dilate adequately the stricture and to observe the effect induced. In most even of these cases this is sufficient to enable the surrounding parts slowly to improve, and finally, the fistulous passages to take on the healing process. The dilatation, however, having been made and maintained for some time, and little or no benefit having resulted in the condition of the fistulæ, there are two courses open, one or other of which it will be desirable to adopt; the first is, to stimulate in some measure the walls of the fistulæ themselves, and to bring about adhesion of opposing surfaces; the second, to lay them open, in order to produce recent and healthy wounds, so that they may heal up soundly from the bottom. But associated with such treatment, it is of the highest importance at the same time to attend closely to the patient's general health, seeking to maintain the secretions and excretions in a natural condition. Very much is to

be done by judicious care and management of his regimen and habits, by the selection of an easily-digested and nutritious diet, and by the administration of tonic medicines and cod-liver oil.

Various agents have been employed for the accomplishment of the local measures first named. One of the most useful is the concentrated tincture of cantharides, applied on a camel's-hair brush, or on a probe armed with lint, or a fine syringe. Solutions of the sulphates of zinc or copper, and of the nitrate of silver, have been introduced by means of a syringe, sometimes with apparently good result. One of the best modes we can employ is to introduce carefully, as far as it is possible, a small and flexible silver probe, coated with nitrate of silver. The probe, thus armed, must be carried quickly up the fistulous sinus, a plain probe having been introduced immediately beforehand, as a guide to the length and direction of the passage. It often happens that the external orifice of the sinus is smaller than any other part of it. It is advisable, in such a case, to apply a little caustic potash, for the purpose of enlarging it, and so facilitating the removal of the discharge.

The cure of obstinate urinary fistula has often been attempted by introducing a catheter, and permitting it to remain in the urethra for days together, on the principle of ensuring, as it has been supposed, the passage of the urine through the instrument, and thus preserving from irritation the fistulous passages.

Little, however, is gained by these efforts, for experience shows, that however large the instrument may be, and however closely it may fit the urethra at the present moment, before twenty-four or thirty-six hours have elapsed it will lie loosely in the canal and urine will pass by its side. It is not possible, in fact, to remove urine from the bladder and at the same time to avoid contact with the urethra, for any lengthened period, by this means. But further, if the attempt to maintain the urethra distended, by substituting an instrument of larger size as soon as the inlying catheter is inadequate to fill it, be persevered in, it is not unlikely to result in ulceration of some part of the urethral walls, a condition which will not aid us much to produce any healing of the fistulæ associated with it. I have seen this accident produced solely in this way, and its manifestations became too obvious in the formation of a fresh fistula anterior to the scrotum, where the urethral coverings are thin, purely from an unsuccessful attempt to empty the bladder, and prevent the urine from coming in contact with the urethra by this means. The passage of urine by the side of an instrument is due, as I have had frequent opportunities of observing, when maintaining catheters in the bladder for the treatment of narrow stricture, to an action which is impossible to prevent in these circumstances—viz. that of capillary attraction. As soon as there is the slightest interval of space between the catheter and the walls of the urethra, urine begins to drain off, in obedience to the law referred to. This action remains in continuous exercise, and is to be distinguished altogether from that by which urine

flows freely, in obedience to an expulsive effort of the bladder. In this case, it is true, the fluid takes commonly the course of the catheter; but the continuous drain which occurs by the side of the instrument from the cause named, inevitably defeats our efforts to preserve the urethra free from the presence of urine. The mode of treatment, therefore, which consists in tying in a catheter, is to be regarded as generally inadequate to the cure of fistula, and it is one which has obtained countenance chiefly from the plausibility of a theory which is certainly unsupported in practice. It will generally be better to withdraw artificially all the patient's urine by introducing a catheter three or four times a day, if it be really necessary, than to permit the instrument to remain in the bladder, and prove a source of constant irritation.

Free incisions through the fistulae, down to their origin in the urethra, or nearly so, have been sometimes found successful in inducing a new and healthy process of granulation from the bottom of the wound, and thus in ultimately producing complete closure of the unnatural passages,—provided always, however, that there is no obstruction to the free egress of urine by the urethra, otherwise no such measure can be of any service. In some cases in which external division of the stricture on a grooved staff is indicated, this operation may be performed in such a manner as to include the fistulous opening in the incision, in which case a successful result may generally be reckoned on. Whether or no, a simple incision carried through the fistulous track may sometimes aid in ensuring the free discharge of matters hitherto more or less confined within irregular cavities, and so presenting an insuperable obstacle to reparative action in the tissues.

For considerably more than a century, it has been occasionally the practice amongst surgeons, especially in France, to make an artificial opening in the perineum upon a grooved staff, in order to give issue to the urine, for various purposes in connexion with diseased bladder and urethra. In this manner the irritating fluid being withdrawn by a short route, the parts anterior to it were relieved from its injurious influence, and were observed to acquire a healthier condition. This operation, which became familiarly known as the *Boutonnière*, was practised by Colot, Ledran, Chopart, Dionis, Lafaye, and J. L. Petit, in various circumstances. Much more recently the puncture of the bladder by the rectum has been practised with a similar result, more especially where an unusually narrow or irritable stricture has existed with numerous fistulae. The principle upon which these methods of proceeding have been serviceable, is that of removing all sources of irritation, but particularly the constant passing of acrid urine from both the natural and unnatural channels which had hitherto given exist to it. The precise mode in which it should be made applicable must be determined according to the individual requirements of each particular case. The instances, however, in which such measures are necessary, must be looked upon as of rare occurrence.

The subject of providing for the withdrawal of the urine from the bladder without contact with the urethra will be again considered in connexion with the next class of cases, in which the achievement of that desideratum is an almost necessary element to the success of those operative measures which are usually understood to be comprehended under the term *Urethroplasty*.

Wimpole-street, April, 1856.

Medical Societies.

MEDICAL SOCIETY OF LONDON.

SATURDAY, MARCH 29TH, 1856.

DR. CHOWNE, PRESIDENT, IN THE CHAIR.

MR. HENRY SMITH read a paper

ON THE EMPLOYMENT OF DILATATION AND THE ACCESSORY MEANS IN THE TREATMENT OF THE MORE OBSTINATE FORMS OF STRICTURE OF THE URETHRA.

The author commenced his paper by making some remarks upon the various modes of treating those obstinate cases which so often baffle the surgeon, and gave it as his opinion that, in consequence of the great attention given of late years to the consideration of cutting operations, surgeons had been insensibly led to place much less reliance upon the treatment of the disease by dilatation than they ought to do. The use of chloroform had also a tendency to foster the present mania for dividing strictures. Good, however, had unquestionably been effected, inasmuch as many individuals who had formerly been leading a miserable existence, in consequence of inveterate and complicated stricture, had been induced to submit to operations, and had been restored to health; still, on the other hand, much mischief had been done, as patients have been operated on unnecessarily, and some had lost their lives in a melancholy way, several examples of which had fallen under his observation, or had come to his knowledge. The author then proceeded to discuss the merits of dilatation, and to consider the mode in which it acted. The comparatively little benefit which was produced by it in the more obstinate and contractile strictures arose, in a great measure, from hasty and insufficient attempts to dilate by using small catheters and metallic sounds—instruments in themselves well adapted to the majority of cases of stricture, but capable of doing much mischief in the class of cases he was now alluding to. Local and general irritation, to a great degree, was the result of repeated attempts to pass small metallic instruments; abscess, hæmorrhage, laceration, and occasionally death ensued. Some cases were mentioned where fatal effects had followed the employment of catheters. He had seen so many unsatisfactory results proceeding from this treatment that he had of late adopted the use of wax and flexible bougies in the early part of the treatment of complicated cases, and he was convinced that much more good could be effected, and that dilatation could be carried on in a more safe and effectual manner. Bougies, especially those of

wax, caused no irritation, and the surgeon could much more readily hit the orifice of the stricture with an instrument which caused little pain, and would adapt itself in passing along to the form of the urethral canal. He had treated in this way patients who had been under the care of most experienced surgeons, but who had used small metallic instruments, which produced such irritation, that in some of the instances the patients, from absolute dread, would not permit of their use, and he had been able to carry on dilatation in this manner where it could not be effected before. When, however, he was able to get up to a No. 5 or 6, he had laid aside bougies, and carried on the remainder of the treatment with catheters or metallic sounds. His observations applied solely to the more intractable and complicated cases, for in the majority of instances of stricture he would employ the catheter from the beginning of the treatment, and use it throughout with the best and speediest result. When, however, it became evident, as it would do in some of these cases, that dilatation alone would not succeed, we should not hastily resort to cutting, but call to our aid some less dangerous but yet powerful remedy, and this existed in *potassa fusa*, which the author had used for several years. He had found it of great service in cases where there was a dense and unyielding stricture, especially those situated in the penile portion of the canal, and which are, contrary to general recognition, by far the most undilatable. Mr. Smith wished to be particularly understood that he considered that *potassa fusa* should only be employed as an adjunct to dilatation. Holding this principle in view, we should not be betrayed into using it unnecessarily, or trusting too much to it. Some cases were related where its good effects were marked. In one instance the patient had been recommended to have perineal section performed; but he afterwards fell into the author's hands, and got great relief from the use of *potassa fusa*, aiding dilatation by bougies. The author, in conclusion, made some brief remarks on the employment of permanent and rapid dilatation. He considered that there were many cases of old callous strictures where the urinary organs were not irritable, which would be greatly benefited by these modes of treatment, whether carried on in the ordinary manner of retaining a catheter for twenty-four hours and changing the size from day to day, or by the instruments used by Mr. Thomas Wakley, which latter could undoubtedly produce most powerful and rapid dilatation. His own observation of their effects had extended to one case only, and here the result was unfavourable; but Mr. Wakley had informed him that he had used them extensively, and with excellent results, and there could be little doubt that if the cases were carefully selected, rapid dilatation would succeed well; but he should apprehend, where there was an irritable urethra, or tendency to constitutional sympathy, such a mode of treatment was injurious. The author concluded his paper by relating some cases in which he had resorted to permanent dilatation with excellent results.

The discussion upon this paper will appear in our next.

AMPUTATION OF THE FOOT AT THE ANKLE-JOINT.

Mr. HENRY THOMPSON read a paper on Amputation of the Foot at the Ankle-joint, after the manner of Mr. Syme, illustrated by a case, and by diagrams explaining the method pursued. The case was briefly as follows:—

L. O—, a girl aged ten years, was admitted to the Marylebone Infirmary in April, 1855, after a residence of about four years at Margate for her health. She had suffered from indolent glandular swellings in various parts of the body, and from caries of the tarsus and metatarsus for about five years. Her state on admission was as follows:—The foot is greatly swollen, and numerous sinuses exist in it. Following these with a probe, carious bone can be detected in the tarsal as well as in the metatarsal bones. Health impaired; discharge considerable. To have tonics, cod-liver oil, and good diet. In the course of three months she had greatly improved in general condition, and Mr. Thompson decided on performing the amputation in the following manner:—

July 4th.—He entered the bistoury at nearly the posterior border of the outer malleolus, and carried it firmly through the soft parts, in a line obliquely downwards and backwards, under the point of the heel, so that the incision was directed sufficiently far back to fall behind the greater tubercle on the inferior aspect of the calcaneum, then upwards to the corresponding point, a little behind the centre of the inner malleolus. The point of the knife was next introduced at the commencement of the incision, and carried over the dorsum of the foot to the other extremity of the wound at the inner malleolus. The foot was then raised, so as to render the sole perpendicular, and the soft parts were carefully dissected up from the bones, so as not to cut or score the flap, by keeping the point of the bistoury close to the *os calcis*, and defining its contour until the insertion of the *tendo-Achillis* was reached. The operator then took the foot into his own hand, and depressing it, opened the joint, dividing the lateral ligaments, and lastly, the remaining soft structures close to the posterior aspect of the astragalus and *os calcis*, separating from the latter the *tendo-Achillis*, which completed the amputation. The two malleoli, united by a thin slice of bone, were then sawn from the lower ends of the tibia and fibula, accurate approximation made between the cut surfaces, and maintained by sutures and a compress. A week after the greater part of the wound had healed by the first intention. In less than six weeks, the wound had firmly cicatrized; there were no sinuses, pain, or even tenderness, in the stump. Mr. Thompson referred to the long and tedious convalescence which almost invariably followed these operations in hospital practice, and the frequency with which we observed non-union, cedema of the flap, sloughing of a portion of it, and continued suppuration. He attributed these bad results to three circumstances:

1. To the division of the posterior tibial artery too high up.

2. To the infliction of injury upon the heel flap, either by the knife, or by too forcibly handling it during the operation.

3. To the unnecessarily hollow form of the heel flap, as usually made, by incisions carried too far forward on the sole of the foot.

Respecting the last-named point, he remarked that it was physically impossible that such a flap could be brought into apposition with the surface with which it was nevertheless intended it should unite, the result of which must be a slow process of granulation, and not healing by the first intention. He observed that Mr. Syme had recently called attention (Clinical Lecture, reported in *THE LANCET* for March, 1855) to the inconveniences of a too hollow flap, and had seemed there to recognise them more fully than in any previous descriptions of his operation. The method recommended now was illustrated by a large diagram, representing the foot and the lines of incision.

Mr. HENRY LEE bore testimony to the results of this operation as described by Mr. Thompson. He had rarely seen cases in which the recovery had not been tedious, delayed by sloughing or slow granulation of a considerable wound. He quite agreed that the plan proposed was likely to produce a better result, and he regarded it as a considerable improvement upon the ordinary practice.

Mr. BISHOP made some inquiries relative to the nature of the boot which the patient wore, and respecting that usually adopted in these cases.

Mr. THOMPSON briefly replied by thanking the fellows for the kind attention and approval which they had accorded to his paper, and observed that an ordinary boot, from which the fore-part was removed, had been satisfactorily used by the girl, as, on account of her growth and needy circumstances, the very complete apparatus which was used by adults in these cases had not yet been employed.

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SATURDAY, APRIL 5TH.

Mr. JABEZ HOGG related the following

CASE OF CROUP, IN WHICH TRACHEOTOMY WAS PERFORMED.

J. G. C—, a boy, aged eleven years and a half, complained of sore-throat, with a slight cough, on the evening of the 10th of March, 1856. (A younger sister had died of scarlatina maligna of ten days' duration). Medicine was prescribed which afforded relief; and the next day, the 11th, he was much better. On the 14th, he again complained of his throat, and so much lassitude, that he took to his bed. The tonsil on the right side was swollen, and the fauces were observed to be of a vivid red colour; cough troublesome. On the 15th, the symptoms had increased in severity; and Dr. West was called in. On the 19th, the boy was better in every respect, with the exception of the cough, which then had a croupy sound. This became

much worse towards night; the respiration became difficult; there was lividity of countenance; and great prostration. It was now evident that he had laryngitis. Eight leeches were applied over the trachea, with great relief to the more urgent symptoms; and two grains of calomel, with one grain of Dover's powder, were administered every hour during the night with considerable benefit. During the next night, however, the difficult respiration returned, and increased so much, that suffocation seemed inevitable, unless something were done. Early the next morning, it was decided to make an opening into the trachea; and Mr. Hancock being consulted, and concurring in the propriety of the step, performed tracheotomy. Immediate relief followed, and the boy continued for some time to cough up freely quantities of frothy mucus through the canula. Everything went on most satisfactorily up to the next evening, the 22nd, when the respiration became oppressed, and other symptoms were less favourable. Dr. West discovered considerable dulness about the left lung. Before twelve o'clock his respiration became quiet, and sank to twelve in a minute. He died at seven o'clock the next morning.

The autopsy was made four hours after death. The edges of the opening in the trachea were quite healthy; considerable quantity of fat beneath the surface; a small infiltration of serum about the neighbourhood of the wound; lungs emphysematous; no adhesions in either lung; slight and recent pleurisy, with small deposits of lymph on the right upper lobe; collapse of the lower edge of the middle, infringing on the lower lobe, which was in the second stage of pneumonia; air-tubes of the right upper much freer than the other bronchi, but they contained purulent matter; lower half of the lower lobe of left lung red and hepatized as far as the inferior margin of the upper lobe. Both lungs were filled with very small miliary tubercles. The pericardium contained about two drachms of transparent serum. Heart normal; no swelling about the tonsils, nor any false membrane in the oesophagus, which was perfectly healthy; considerable oedema of mucous membrane covering the arytaenoid cartilages, and under surface of epiglottis; slight deposit on the whole larynx, which was blocked up by a thick layer of lymph firmly adherent about the chordæ vocales, and completely covering the mucous membrane in a continuous layer along the trachea to its bifurcation. The mucous membrane beneath was much congested; the layer of lymph extended, and almost blocked up the tertiary bronchi; kidneys large, and cortical substance pale.

NEGLECTED CONGENITAL PHYMOSIS.

Mr. HENRY SMITH related the particulars of two cases, showing the evil results of neglected phymosis occurring in advanced life. The first was that of a man between sixty and seventy, who applied to Mr. Smith, at the Westminster General Dispensary, for relief of retention of urine, from which he had been suffering more or less for three days. On preparing to relieve him, he found only

a small opening in the prepuce, through which a probe could just be passed. It was so difficult to find the urethra, that it was deemed prudent to exhibit chloroform, and at once divide the contracted prepuce. This denudation of the glans was, however, extraordinarily difficult, as the prepuce was found to be closely adherent to it, and greatly thickened, and the adherent medium was very dense. By degrees, the whole prepuce was dissected off the glands, and the greater portion of it was cut away. A catheter was then introduced, and the patient relieved. It was afterwards ascertained that the prepuce had been slit up some years ago, but it had been done imperfectly, as adhesion took place again; as a consequence of which the patient repeatedly suffered attacks of retention. The second case mentioned by Mr. Smith was more serious. It was that of a man aged sixty, whom he had seen in consultation, and who had always a tight foreskin; but during the last twelve months pain was felt in the part, and after a suspicious connexion, a discharge took place. When Mr. Smith first saw him, there was a profuse fetid discharge coming from under a very tight prepuce, through the opening of which a warty substance projected. The spongy body of the penis was indurated, and the pain was excessive, at night preventing sleep; micturition was also much prevented. The prepuce was freely slit up, and found adherent to what had been the glans penis, but which was now observed to be one foul warty excrescence. This was removed, with great benefit to the patient for a short time, as he could pass his urine freely, and the pain was relieved. But in the course of a few weeks the pain returned, as well as the discharge; the induration remained. Two eminent histologists had examined under the microscope the growth removed, and rather inclined to the opinion that it was not malignant. On consultation, however, with Mr. Fergusson, it was deemed prudent to remove the whole penis. This was done, and the patient speedily recovered. On examination under the microscope, the diseased part presented the well known appearances of epithelium.

Mr. HANCOCK remarked that his experience confirmed the views expressed on the subject by the late Mr. Hey, of Leeds—viz. that when cancer of the penis appeared to originate in congenital phymosis, it was of a less malignant character than when it arose independently of that condition.

A paper by Dr. F. J. BROWN, of Chatham,

ON THE XIPHISTERNAL OR PERICARDIAL CHISEL-SOUND,

was read, in the absence of the author, by Dr. E. SMITH, one of the secretaries.

The author commenced by laying down the following propositions, distinguishing between facts and hypotheses:—1, (fact.) A single chisel-sound is frequently heard in the lower sternal region, in persons apparently healthy. 2, (hypothesis.) The sound is due to white pericardial patches, *plus* toxæmia. 3, (fact.) It is usually accompanied by a certain form of dyspepsia, which

disappears with it under treatment addressed to the assumed pericardial lesion. 4, (hypothesis.) The attendant dyspepsia is only sympathetic. 5, (fact.) The disease, of which the chisel-sound is the manifestation, is almost invariably confounded with ordinary dyspepsia, or some other disorder, although a diagnosis can readily be effected by observing the concurrence of the physical signs with the symptoms. 6, (fact.) The natural course of the disease is to persist; and 7, (fact.) It is not dangerous to life. 8, (fact.) It requires no treatment when unaccompanied by disorder of digestion, or of any of the other natural functions. 9, (fact.) When it is present with any other disease, benefit to that disease usually results from cardiac treatment. 10, (fact.) It readily yields to mild antiphlogistic treatment addressed to the assumed lesion. 11, (fact.) It can only be diminished, but not removed, when the heart is diseased in its valves or muscular tissue. 12, (hypothesis.) The disease consists in general dyscrasia, with local perverted nutrition; the dyscrasia being allied to that of dyspepsia, gout, or rheumatism; and the local lesion consisting in milky patches on the pericardium. 13, (hypothesis.) Toxæmia invariably coexists with white patches on the pericardium, when the chisel-sound is heard. 14, (hypothesis.) White patches arise either by an inflammatory or a non-inflammatory process. 15, (hypothesis.) The chisel-sound does not follow upon the double friction sound of mild subacute pericarditis, except when dyscrasia supervenes upon the pericarditis. 16, (fact.) Pericarditis, mild and limited, will occur, and will disappear without giving rise to the chisel-sound. 17, (hypothesis.) The white patches on the pericardium are analogous to those observed on the liver and spleen. 18, (hypothesis.) The white patches that arise from a perverted nutritive process are attended, during their formation, by hyperæmia and pain. Dr. Brown said that he did not attempt to explain the physical cause of the chisel sound; it was a single sound, synchronous with the systole, and resembled the noise made by a chisel or short plane used forcibly across the end of a piece of timber. It is heard at the lower part of the sternum, and over the xiphoid cartilage, and is most intense there even when it extends over the whole sternum. The extent of cardiac dulness is sometimes increased towards the præcordia, but not always. The dyspepsia accompanying the chisel-sound is not amenable to stomachics and tonics, but is removed, together with the sound, by leeches, blisters, tartarized antimony, and iodide of potassium. The author related a number of illustrative cases; and concluded by desiring the assistance of the profession to investigate the subject.

Discussion on Mr. HENRY SMITH's paper

ON THE EMPLOYMENT OF DILATATION AND THE ACCESSORY MEANS IN THE TREATMENT OF THE MORE OBSTINATE FORMS OF STRICTURE OF THE URETHRA.

Mr. Z. LAURENCE exhibited some instruments

to the Society by which he considered caustic could be more effectually, safely, and easily applied than by any of the present plans. They consisted of a straight tube, open at both ends, and a catgut bougie armed with the nitrate of silver, which was passed through the tube to the seat of the stricture. The catgut bougie might be tapered to a fine point, or fashioned to any form, so as to pass into or through a stricture. The bougie was armed by inserting its extremity into a melted solution of nitrate of silver. He had employed the instruments with much success in many cases. With respect to the author's recommendation of bougies instead of silver catheters, in some cases of stricture, he might mention that Mr. Quain was in the habit of treating cases of stricture by this kind of instrument with the best results.

Mr. DE MÉRIC, in reference to the evil effects mentioned by the author as resulting from the use of silver catheters in stricture, said that these results were quite the exception to the rule, and did not apply to the use of these instruments generally. As an illustration of the anomalous effects sometimes following the use of the catheter, he mentioned a case of remarkable sympathetic pain in the back, connected probably with some twigs of the vertebral nerves, arising from retaining a catheter in the urethra. The case had been one of obstinate stricture, resisting the passage of an instrument for some time. At first the symptoms were referred to an abscess, but there was little doubt now that they were sympathetic. He did not believe that the use of the silver catheter was liable to do so much mischief as Mr. Smith had stated. He (Mr. de Méric) complained that the author of the paper had not, when speaking of his experience of the use of *potassa fusa*, referred to his unsuccessful cases. This was no doubt an oversight, and to be regretted. He had also not referred to the use of other kinds of caustic, and had neglected to mention cutting the stricture, when speaking of treating the disease from within. With reference to the denunciation made by Mr. Smith against the perineal section, Mr. de Méric referred to the insufficiency of the data on which he founded this opinion, and contended that the true value of the operation could only be determined by accurate statistics, embracing many cases, and every circumstance which could influence the result of the operation. It was no doubt a useful and admirable operation in some instances of stricture, when properly and judiciously selected.

Mr. HENRY THOMPSON concurred in nearly all that Mr. Smith had said respecting dilatation, which was the oldest and safest mode of treating stricture, and which, if carefully and judiciously employed, was equal to the cure of a large majority of the cases of this disease. He was glad to find that Mr. Smith now only used *potassa fusa* as "an adjunct" in the treatment of stricture, and that he combined with it dilatation, as on a previous occasion he had vaunted the caustic as a specific. Caustic could not remove all the structures affected by stricture, and, to be successful, must be assisted by dilatation. He vindicated the operation of

Syme when properly performed and in proper cases, and stated that he had employed it in eight most severe cases, which had resisted all other means of treatment, seven of which had been completely successful. The operation he had only performed as a *dernier ressort*, but there were some cases in which no other proceeding was of any service.

Mr. THOMAS WAKLEY remarked, that in January 1851, more than five years since, he introduced to the notice of the Society certain instruments which he believed would improve the treatment of strictures of the urethra, especially in their more obstinate and complicated forms. Upon that occasion he predicted that much success would attend their use, and he could report that the result of the five years' experience, in his own hands and those of other practitioners, had far exceeded even his most sanguine expectations. The large sale which the instruments had attained, fully proved that they were now used by very many surgeons, and, in some cases, by patients themselves; but he believed, with a few exceptions, the instruments were almost wholly in the hands of the provincial surgeons. He quite agreed with the author of the paper, that dilatation was the rational treatment of strictures, and that the safest and readiest cure depended upon absorption. From the commencement of his professional life, from experience and conviction, he had always considered that dilatation was the only really proper and safe treatment of stricture, and it was the difficulty and impossibility of fully carrying out this plan with the old catheters and bougies in extreme cases of that disease, which led him to the invention of the urethral guide and tubes. The operator possessed great dilating powers with these tubes, but it was not to be abused; neither could they be employed with a successful issue when organic disease of the bladder or kidneys existed. In the rapid dilatation of strictures with these instruments the patient should be confined to his bed; medical and mechanical treatment should be combined, and the character of the urine carefully watched: indeed, the surgeon would find, by anxiously attending to these rules, that the irritative fever, and other perplexing results, so much complained of when rapid dilatation was employed, would not ensue. He congratulated the author of the paper upon his modified views respecting *potassa fusa*. He could not help referring to the last time he had the pleasure of listening to him on the same subject, and he fully expected that upon the next occasion when he read a paper upon stricture of the urethra, he would only mention *potassa fusa* as he had that evening spoken of the knife, condemning its use. Indeed he could not understand why either one or the other should be employed, while there were means within reach for a really safe treatment of the disease. He (Mr. Wakley) entreated those surgeons who had not already done so, to give the new system of treatment a trial, especially in those cases where a cutting operation had been decided upon. He had treated more than 600 cases of stricture, presenting almost every

variety and extent of disease, and in no one case had he had occasion to resort either to the use of the knife or caustics.

Mr. CANTON, in some cases of stricture in which he had been unable to pass a No. 2 silver catheter, had succeeded in introducing a small wax bougie, as recommended by Mr. Smith.

Mr. HENRY SMITH, in reply, thanked Mr. Wakley for the observations which he had made in reference to the treatment of stricture by rapid dilatation, to which too much publicity could not be given.

APRIL 11TH.

PARTIAL RETROVERSION OF THE UTERUS, FOLLOWED BY SUDDEN AND PROTRACTED ANÆMIA.

Dr. WINN stated, that on the 18th of February last, Mr. Eagle requested him to see, in consultation, a tall, spare, middle-aged woman, who had been seized two days previously, whilst suddenly rising from her chair, with inability of passing urine, accompanied by vomiting, bloodless countenance, faltering pulse, and such symptoms as usually attend extensive internal hæmorrhage. She was the mother of two children, and had aborted twice. There was reason to suppose that she was three months pregnant at the time of the attack, although a slight sanguineous discharge from the womb appeared two months previously. Mr. Eagle had drawn off, at the very onset of the disease, and with little difficulty, a moderate quantity of urine; he had also been obliged to perform catheterism twice daily since the attack. On making an examination, Dr. Winn found the body of the uterus enlarged, and partially and obliquely retroverted, the fundus being inclined towards the right side. The cervix uteri pressed, but not strongly, against the neck of the bladder. It appeared that she had never rallied thoroughly since the attack, and when Dr. Winn first saw her she was in an alarming state of exhaustion. As the symptoms were much more severe than those which generally supervene on mere retroversion of the uterus, he was inclined to suspect the rupture of some internal blood-vessel, although no physical signs of such lesion were present. The sudden and intensely blanched state of the countenance was very remarkable, especially as the patient's lips had always presented a ruddy appearance previous to the attack. Opium in frequent and large doses was ordered, with a view of allaying the sickness; a turpentine injection to relieve tympany and constipation; and brandy, in iced milk, to support the strength, were also prescribed.

On the 19th, the symptoms continued much the same; a very slight discharge of blood, however, from the uterus had taken place.

On the 20th, she passed urine naturally for the first time, and the symptoms had improved with the exception of the anæmic condition, which remained the same. There had been no recurrence of the uterine discharge.

On the 22nd, she passed without hæmorrhage, a

small portion of tough thick membrane, about two inches square, apparently a portion of diseased decidua. After this occurrence, she gradually recovered, although nothing in the shape of an ovum was discharged from the uterus.

Dr. Winn considered the rapid accession of anæmia in this case a remarkable phenomenon. It was possible, he thought, that the sympathetic nervous excitement might have caused a change in the chemical action which is supposed to produce the colouring matter in the blood corpuscles. If the poison of malaria could affect the colouring properties of the blood globules, it was not unreasonable to suppose that nervous force was capable of producing similar changes.

Mr. ROGERS HARRISON remarked that the displacement of the uterus might have been the result and not the cause of the anæmia.

Dr. CHOWNE suggested that the case might be designated one of prostration rather than of anæmia.

Dr. WINN replied that both these conditions of the system were present.

Dr. SNOW suggested that the anæmia might have been the result of the loss of blood which had not been detected, as, for instance, from the alimentary canal, the blood passing off by stool, but so altered in character as not to be noticed. He had known such a case in which the hæmorrhage was from the bowels; it was at first very obscure, but was eventually discovered.

Dr. WINN remarked that nothing whatever like blood had been discovered in the dejections, which were carefully examined.

Mr. BAKER BROWN regarded the anæmia and retroversion rather as coincidental than consequent upon each other. He had seen great prostration, but never anæmia, from sudden retroversion of the uterus. Some blood-vessel might have given way internally in Dr. Winn's case, and yet no external hæmorrhage present itself.

Dr. WINN said that no such lesion could be detected.

IODINE INJECTIONS IN OVARIAN DROPSY.

Mr. BROWN referred to a case of ovarian dropsy which he had brought before the Society some time since, and in which he had injected six ounces of the tincture of iodine of the Edinburgh Pharmacopœia into the cyst, after drawing off eighteen pints of fluid. The patient left the hospital with a re-accumulation of fluid to the extent of a quart. He had seen her frequently since; she continued in excellent health, and there had been no increase in the quantity of fluid in the cyst. He should shortly bring some cases before the Society illustrative of this practice, which in certain instances appeared to have arrested, if not cured, the disease.

Dr. HASSALL read a paper on

THE ADULTERATION OF LIQUORICE,

this being the first of a series of Reports on the Adulteration of Drugs and Pharmaceutical Preparations. Of twenty-one samples of roll, of foreign

extract of liquorice analysed, every one was found to be adulterated, the substances employed for the purpose of adulteration being various kinds of starch or flour, as those of rice, wheat, barley, rye, and potato, and cane sugar, gum, and chalk. Genuine extract of liquorice dissolves without leaving any residue; those of the adulterated liquorices weighed, when deprived of moisture, from 18 to 42 per cent. Of the pipe liquorices, commonly called refined liquorice, all were likewise adulterated, and this generally to a greater extent than the roll liquorices. They furnished insoluble residues, consisting, for the most part, of different kinds of starch, varying from 34 to 41 grains per cent.; they usually contained cane sugar, and the pipes were generally inclosed in a tube of gelatine of the coarsest description, but little superior to common glue. The Pontefract Lozenges examined furnished equally large residues, and they contained cane sugar. To such an extent is the adulteration of pipe liquorice carried, that it often contains not more liquorice than is sufficient to flavour the article. Of twenty-eight samples of powdered liquorice subjected to examination, at least eleven were adulterated as follows:—One consisted chiefly of wheat flour; one contained a large quantity of wheat flour; two, much foreign woody fibre; two, woody fibre and turmeric; another, woody fibre and wheat flour; one was made up chiefly of Indian corn, potato, and sago flours, and turmeric; another of sago, woody fibre, and much turmeric; another of damaged East India arrowroot and a little turmeric; and another consisted almost entirely of potato flour, a little wheat flour, and turmeric. The last preparation of liquorice examined was the extract of the "Pharmacopœia." In order to insure a genuine article, a form is prescribed for the preparation of this extract. Of ten samples, six were found to be adulterated, and to consist merely of the foreign extract melted down. Fourteen of the foreign roll liquorices, as well as several of the liquorices sold as the Pharmacopœial extract, contained copper, derived from the vessels in which the extract was prepared. It thus appears that liquorice—an article, by the way, which bears a high duty—is adulterated to an enormous extent. At the conclusion of his paper, Dr. Hassall produced a variety of samples of adulterated drugs, as jalap, ipecacuanha, rhubarb, turmeric, squilla, colocynth, compound scammony powder, &c. A large number of diagrams were also exhibited to the Society, illustrating, on a large scale, the application of the microscope to the subject of adulteration.

Dr. GRUB believed that liquorice was occasionally adulterated with French yellow, which, on the addition of hydrochloric acid, produced effervescence. He thought he had detected more sugar in liquorice than the quantity stated by Dr. Hassall to be the average.

Dr. LANKESTER, after speaking of the exceeding value and importance of the investigations of Dr. Hassall in respect to the adulteration of food and drugs, stated his belief that drugs were adulterated to an immense extent, even greater than was food.

These adulterations were such as were not only detectable by the microscope, but by other means. He animadverted on the various modes of making extracts, by which an uniform rate of strength was impossible, so that we could not say precisely what we were prescribing. He stated that at Pontefract, where the "cakes" were manufactured, liquorice was cultivated to a great extent; but the cakes were made either from the Italian or the Spanish juice. With respect to the question of what was to be done with adulterating druggists, he thought any person who sold adulterated drugs equally with one who sold adulterated food, should be fined and exposed. Government adopted this system with respect to articles which paid duty, and why not on substances which did not? Competent examiners of food and drugs might be appointed; and they would have little difficulty in determining the quality of the articles submitted to them. The College of Physicians had the power of inspecting druggists' shops, but he supposed that the practice had fallen into disuse.

Mr. HUNT remarked that most of the drugs in use were grossly impure, and thought that Government should institute some means of detecting and punishing the adulterators. The Metropolitan Local Act gave some powers to the medical officers of health respecting the supervision of articles of food, but not so with respect to drugs; the powers were so indefinite that it might be questioned whether they could be efficiently acted upon. He referred to Gray's Supplement to the Pharmacopœia to show the extent to which adulteration was carried.

Dr. WEBSTER thought the Society was much obliged to Dr. Hassall for his paper just read; and although liquorice might not be an important medicine, its adulterations were of considerable importance. He could not add much information upon the question discussed; but as allusion had been made to the College of Physicians respecting their power of visiting druggists' shops and inspecting medicinal preparations there dispensed, it might be satisfactory for the Fellows to know, that so far from such visitations having fallen into desuetude, they were still continued, even more efficiently than formerly; and this, Dr. Webster could assert from his own knowledge. As the Statute of Queen Mary only empowered the College to visit shops in the city, they had no jurisdiction in any other part of the metropolis; but he would repeat, the censors, who were always accompanied by the two wardens of the Apothecaries' Company, performed this duty most zealously; indeed, only a few days ago they had been so occupied during many hours consecutively, and of which a full report was afterwards made to the president. He believed no similar inquisitorial power, in reference to any other article, existed in London; and it had been productive of beneficial results, which ought to be extended.

Mr. ROGERS HARRISON regretted that Dr. Hassall's paper did not relate to a more important drug than liquorice, and questioned whether the Medical Society was the proper arena to discuss the paper.

Mr. CLARKE contended that the Society was the proper place for its discussion, and referred to the great services which it had rendered to the public by exposures of dangerous manufactures many years since.

Dr. ROGERS referred to the variable strength of the extract of belladonna, and the importance of an uniform strength for such powerful medicines.

Dr. WEBSTER said—in reply to a question whether wholesale druggists were likewise inspected—that when censor, besides ordinary shops, he officially visited the establishment of Mr. Battley, the Messrs. Allen, of Plough-court, and also the laboratory of the Apothecaries' Company. In fact, he believed they had power to enter any shop within the City, wherever drugs were sold, inspect every article, and even destroy whatever seemed of bad quality, which had been done on various occasions by former censors. When he was in office, three years ago, most of the substances examined seemed of good quality, some being, however, inferior; but scammony was almost constantly impure. The articles were usually inspected upon the druggist's premises, not at the College; but he had himself never used the microscope. If any drug appeared bad or adulterated, it was pointed out to the party, and a record of the fact made; and he (Dr. Webster) recollected that, on one occasion, they threw an impure extract into the street gully-hole, it being quite musty. A barrel of some liquid medicine was ordered by the censors to be poured into a common sewer, as they considered the preparation totally unfit for medicinal purposes.

Mr. JABEZ HOGG had examined several specimens of liquorice, which he had found adulterated with sulphate of lime and rice starch; the genuine article was quite the exception. He referred to the importance of educating men to determine by the microscope and other means the genuine from the adulterated article, and mentioned that some time since the calamine forwarded to the Apothecaries' Company had contained only 20 per cent. of the genuine calamine, the rest consisting of carbonate of baryta. The Company now received the calamine only in its proper state. Some time since the Company had sent over to India a large quantity of genuine calamine ointment, but as it differed in appearance from some previously sent, of an impure kind, it was rejected by the authorities and sent back. "Powdered rhubarb" could be purchased at a less price than the root fetched first hand in the market. The "powder" consisted of a quarter part rhubarb, with jalap, turmeric, and wheat flour.

Dr. CHOWNE knew a wholesale druggist who invariably adulterated his ipecacuanha and jalap powders with one third sago-dust. The definition of a good druggist was, "he who can adulterate the best without detection, and who can best detect adulteration."

Dr. SNOW mentioned an instance in which the contents of a large barrel of antimonial wine were thrown into the street. The manufacturers pleaded

that the adulterated article was for exportation, but the plea was not allowed.

Mr. L. B. BROWN spoke of the evil results to the practitioners of medicine and their patients from adulterated drugs. He mentioned an instance in which half a drachm of ipecacuanha powder failed to produce vomiting in a child, evidently from its being grossly adulterated. He spoke of the efficient and laborious manner in which Dr. Alderson, a late censor, had discharged the duty of examining the drugs.

Dr. KIDD remarked that the Dublin College of Physicians had the entire jurisdiction of Dublin with respect to the examination of drugs. Their examinations were scientific and microscopical.

Dr. HASSALL, in reply, stated that he had been led to select liquorice as the subject of his first communication mainly for two reasons: first, because it was an article very largely consumed; and secondly, because it furnished an illustration of a system of adulteration which extended to a variety of other more important drugs and pharmaceutical preparations. In his next Report, it was his intention to describe the adulterations to which certain of the more important medicines are subjected. He had been induced to bring the subject of adulteration under the notice of the Medical Society of London because, composed, as that Society was, of medical men engaged in the active and practical duties of their profession, and prescribing medicines almost hourly, it appeared to him to be a subject in which they were pre-eminently concerned. It was of the utmost importance that they should be made acquainted with the actual condition of the remedies which they employed in the treatment of disease. It was also very desirable that the opinions entertained by the fellows respecting adulteration should be made known. Medicines gave rise to different actions and effects according to the doses in which they were administered. To determine the exact doses of different remedies, and their corresponding actions and effects, had for years past been made the subject of careful observation and experiment by physiologists and others. To adulterate medicines was almost to destroy the value of such labours and inquiries; it was to introduce into the practice of medicine the greatest uncertainty and confusion; it was in many cases to defeat the wisest and best-directed efforts of the physician. Medicines are the chief agents employed in the cure of disease. How all-important it is, therefore, that these agents should be pure and genuine. So long as the adulteration of drugs was permitted to continue, it was vain to expect that any great progress should take place in practical medicine. Disease was surely complicated enough, and difficult enough to cure, without the complication and the difficulty being enhanced by adulteration. Dr. Hassall congratulated himself on having brought the subject of adulteration before the Fellows of the Medical Society, because the views which had been expressed in that Society, in the course of the discussion which had ensued on his paper, would, when made public, be productive of much good. It would be apparent that

the Society regarded the subject of adulteration as one of very high importance to the profession and the community. The opinions which had been expressed would not only tend to check adulteration, but they would serve to encourage those who were using their best endeavours to put an end to so great an evil.

SATURDAY, APRIL 18TH, 1856.

Dr. GIBB exhibited specimens of

ACUTE PLEURO-PNEUMONIA,

taken from the body of a female cat, which died suddenly, after a few days' illness, accompanied by cough. The right side of the chest contained twenty-eight drachms of a turbid, greenish, neutral serum, (specific gravity 1030,) mixed with flakes of lymph. A number of recent adhesions were present between the anterior and lower surfaces of this lung and the costal pleura, and the substance of the lung itself was in a state of inflammation. The opposed surfaces of the upper and middle lobes were adherent, as well as the lower border of the middle to the inferior lobe. The remaining viscera were healthy. He observed that acute disease so visibly marked is not often witnessed in the carnivora, although diseases of the lungs preponderate over every other in the feline tribe of animals.

Mr. DE MÉRIC introduced to the notice of the Society the *serfin*, brought first into practice by Vidal, because it seemed, in his opinion, to be too little used by surgeons. He particularly recommended its employment in cases of circumcision, in which sutures were apt to produce great oedema. The *serfin* kept the mucous membrane and skin in apposition, and prevented any swelling. He related a remarkable case in which the prepuce and glans penis were covered with warts, and there was congenital phymosis. In this case the use of the *serfin* was most advantageous.

Mr. HANCOCK did not think the *serfin* possessed any superiority over the common silk suture in cases of operation for phymosis. When the suture was removed at the expiration of twenty-four hours, he had not found any inconvenience from its use. The *serfin* sometimes did harm by producing too much pressure. If sutures did harm, it was in consequence of their being too tight and kept in too long.

Mr. HUNT read a paper on

PURPURA,

the chief point of which was to show that purpura was merely a symptom, and scarcely a pathological condition, depending on some condition of the system which might be associated with debility or plethora. The treatment of purpura must depend on its cause.

A discussion of some length took place, in which several gentlemen took part.

ROYAL MEDICAL & CHIRURGICAL SOCIETY.

TUESDAY, MARCH 25TH, 1856.

MR. CESAR HAWKINS, PRESIDENT.

ON A CASE OF A YOUNG WOMAN IN WHOM THE MAIN ARTERIES OF BOTH UPPER EXTREMITIES AND OF THE LEFT SIDE OF THE NECK WERE THROUGHOUT COMPLETELY OBLITERATED. BY WILLIAM S. SAVORY, F.R.C.S., Tutor and Demonstrator of Anatomy at St. Bartholomew's Hospital, Surgeon to the Royal General Dispensary.

(Communicated by MR. STANLEY.)

A. M. W—, aged twenty-two, was admitted into St. Bartholomew's Hospital on November 27th, 1854. No pulse could then be detected in any part of either arm. There was feeble pulsation in the right carotid; in the left, doubtful. A harsh systolic bruit was audible over the top of the sternum, which disappeared on tracing it downwards, and a feebler one was heard in the course of the right common carotid. She complained of general debility, of headache, vertigo, and obscure pains in various parts. She had been delicate ever since she was a child. There was satisfactory evidence to show that the pulse had ceased to beat for some years past. There was no distinct history of any previous attack to which her present condition could be referred. She remained in the hospital until she died—a period of thirteen months. During this time her strength gradually passed away. The sight of the left eye began to fail, and at length was nearly lost: an ulcer formed on the cornea which yielded to tonic treatment. Subsequently, ulceration commenced in the integuments over the left parietal eminence, and resisting all remedies, gradually extended, until the bone, and ultimately a portion of the brain, were destroyed. During the last few weeks of her life she was much distressed by impaired and disordered motion and sensation on the right side.

After death, the following condition of the arteries was revealed:—The whole of the arteria innominata was much thickened, and it required considerable pressure to approximate its walls. The lining membrane was pale and smooth, but dull and opaque. The internal coat separated with the slightest force from the middle, and was almost as thick as the other two coats together. The middle and external coats were denser than natural, and slightly thickened. Owing to this morbid state of the tunica, a section of the vessel presented a remarkable appearance. The distinction between the coats was strikingly obvious. When the internal coat was stripped off from the middle, in a great part of the vessel irregular patches of an opaque yellowish deposit came off upon the outer surface of the inner coat, but some remained upon the inner surface of the middle. This deposit, to minute examination, presented all the characters of consolidated lymph intimately blended with the arterial tissues. It was probably in process of degeneration, for here and there many small globules

of an oily nature could be detected. This morbid change extended into the right carotid and commencement of the subclavian artery. In the whole of the former vessel the same change, although to a less extent, was apparent: it was contracted and much thickened; there was no clot in the interior; the inner surface was not reddened. About an inch or less from their origin, the right subclavian, the left carotid, and the left subclavian arteries became suddenly contracted to one-fourth or one-fifth of their natural size. This change extended throughout these vessels; through the axillary, brachial, radial, and ulnar arteries on both sides, and the left external carotid artery. The contracted canal in their interior was completely blocked up and obliterated by a fibrous cord, which extended with scarcely any interruption throughout their entire length. Thus all the main arteries of both upper extremities and of the left side of the neck were reduced to solid cords. Other morbid appearances, of less moment, were described in the paper.

In his remarks upon the case the author observed that, from its history, the progress of the disease had probably been gradual, and unaccompanied by any acute or violent symptoms. He believed that the symptoms observed during life might almost all be referred to a deficient supply of blood to those parts of the body to which the obliterated arteries were distributed. The author then remarked upon the objection which the facts of this case opposed to Rokitsky's views on the subject, and discussed the question at some length. Lastly, he referred to the origin of the fibrous cord which filled up the interior of the contracted vessels. He believed it to be the remains of the blood which had coagulated in the canal, and not an exudation from the arterial tunics; and concluded by giving the grounds upon which this opinion was founded.

Mr. CAESAR HAWKINS remarked that he had seen cases in which pulsation in some of the larger arteries had been lost for a time, but was again restored. Some change had taken place in these vessels different from that which obtained in the case under discussion.

Mr. FERGUSSON said that the case before them showed that a person might have obliteration of a large number of important vessels, and yet live after. The pathological history of the case was very interesting, but he thought the author had scarcely done justice sufficient to the first portion of the case by the deductions which he had drawn from it. He had entered into a minute detail, day by day, of the symptoms presented: but he (Mr. Fergusson) did not see any necessary relation between the pathological conditions found and the peculiar symptoms which had existed for weeks and months. He thought all these symptoms must be familiar to surgeons as existing without any of the changes observable in Mr. Savory's case. The history of the post-mortem appearances was of great excellence and value, but very little attempt had been made to explain the relations which the symptoms presented during life bore to the appear-

ances observed after death. He doubted, indeed, if the author was quite correct in his physiology. For instance, he had regarded the obliteration of the artery in the neck as the cause of the development of necrosis in a portion of the cranium, and the subsequent ulceration of the dura mater, spreading to the substance of the brain. But ulceration of the scalp and exfoliation of bone took place irrespective of obliteration of the main artery. It was not clear that the destruction of tissue was due to this cause; at all events, that change had been seen without it. He was disposed to question the accuracy of the author's views respecting the spread of the disease from the surface to the brain, particularly as the circulation to the brain was supplied from such a different source. He regarded the structural disease of the brain as coincident, and not dependent on the same cause as the other. Mr. Fergusson expressed the high opinion he entertained of the paper, but suggested that minute and tedious details might be left out with advantage in such communications. (Hear, hear.)

The PRESIDENT asked if any member could explain the restoration of the pulsation and circulation in an artery after they had been suspended for years. He referred to the case of a gentleman who had lost all traces of circulation in one upper extremity for a year, and that also, nearly, of both lower extremities. There was no mortification, but some shrivelling of the limb. The circulation was eventually restored. The obliteration could not have been the result of a coagulum. On what did it depend? He would inquire of Mr. Fergusson whether he had not seen ulceration of the brain consequent upon disease spreading from the bone?

Mr. FERGUSSON replied that he had, but it had been the result of a local cause, as pressure, and did not arise from the obliteration of the carotid or other artery, as in Mr. Savory's case.

Mr. SAVORY, in reply to the objections urged against his views, remarked, that he had connected the symptoms during life with the post-mortem appearances observed, as far as he could or dared; and he thought he was correct in attributing the loss of nervous power, and the destruction of certain parts, to the obliteration of the vessel which, or its branches, directly supplied the parts affected. He thought that the deductions he had drawn respecting the spread of the disease to the brain were entirely consistent with correct pathology.

ON MR. LISTON'S METHOD OF HOLDING THE KNIFE IN LITHOTOMY. BY WILLIAM FERGUSSON, ESQ., F.R.S., Professor of Surgery in King's College, &c.

THE object of the author of this paper was to draw attention to what he considered a remarkable error which had gradually crept on the illustration of this operation, as portrayed in the works of Miller, Pirrie, Erichsen, and even that of Liston himself. The author contended that Mr. Liston out with the knife underhand, and not overhand, as has been represented in all the works just named. He (Mr. Fergusson) accounted for this mistake by supposing that Mr. Liston's artist, whilst intent

upon the anatomy of the parts, and the position of the point of the knife, had considered the attitude of the hand as of minor importance. Thus, that Mr. Liston had actually misrepresented his own operation; and that his pupils, whilst professing to describe it, had taken his representation as the model, and so perpetuated an error which in time might possibly lead to much misapprehension, if not to evil consequences. The paper was accompanied by excellent diagrams, representing, on a large scale, the illustrations from the works alluded to, as well as from the author's own work; and contained many passages illustrative of the great manual dexterity of the late Mr. Liston, and highly complimentary to that surgeon.

Mr. ERICHSEN considered that the Society was indebted to Mr. Fergusson for bringing the subject of his paper under its notice. Every one who had performed the lateral operation of lithotomy knew that its success depended mainly on an attention to minor details, as the position of the patient, &c. There did not appear to be any absolute certainty as to the exact mode in which Mr. Liston held the knife in lithotomy when he was making the deeper incisions: some who had seen him thinking he held it one way, some in another. The different changes of position might well escape the attention of the beholder who was lost in admiration at the wonderful dexterity of the operator. He believed, however, that Mr. Liston had laid down a certain principle with respect to the position of the knife, but in practice had changed it according to the circumstances which presented themselves during the operation. It was curious, if Mr. Fergusson was right, that Mr. Liston's diagrams in University College, the plates in his work on "Practical Surgery," and in his Lectures in *THE LANCET*, should all be wrong; for in every one of these delineations the knife was *above* the hand. In the first incisions he (Mr. Erichsen) said Mr. Liston held the knife in the manner described by Mr. Fergusson, and cut downwards; in the second incision Mr. Liston used the knife as a gorget, and pushed it forward to the groove of the staff, and withdrew it in such a way as to avoid a downward cut. So forcible was this movement, that Mr. Liston always broke the knife in lithotomy, by "jobbing" it, as it were, into the groove of the staff. This was best effected, perhaps, by less experienced surgeons, by holding the knife overhanded. Mr. Liston, he thought, suited the position of the knife to the necessities of each case.

Mr. C. HAWKINS said, that in a superficial perinæum, as in a child, the knife might be introduced underhanded; but, in a deep perinæum, it could be used overhanded with the greatest advantage.

Mr. FERGUSSON said that he had seen Mr. Liston operate at least forty times for lithotomy, and never saw him change the position of his hand in any one instance. Mr. Liston had known of the misrepresentation of the position of the knife in the illustration alluded to, but had not the opportunity, or at least did not take means, to correct it. He stated this on the best authority.

Mr. ASHTON said that he had seen Mr. Liston

operate several times: he always held the knife in the manner depicted by Mr. Fergusson.

APRIL 8TH.

ANALYSIS OF CASES OF AMPUTATION OF THE LIMBS, IN THE RADCLIFFE INFIRMARY, OXFORD. BY E. L. HUSSEY, one of the Surgeons to the Infirmary.

The capital operations in the Radcliffe Infirmary are recorded in a register kept for the purpose, the entries being made from notes taken at the time of the operation. In this register and in the admission-books are noted 164 cases of amputation from all causes, which are arranged in the paper in separate tables. Amongst the cases of disease, 91 were for diseases of joints; 55 of these were in the thigh, of which 10 were fatal; 6 died from the immediate effects of the operation, and 4 did not recover sufficiently to be sent home.—The mortality varied in the practice of the different surgeons.—Of 20 cases in the leg only 1 died.—Of 6 cases in the upper arm, and 10 in the forearm, all recovered.—Amongst those who recovered from the operation, 17 never permanently regained their former health; 3 died from accidental illness; in 1 the cause of death was not ascertained; 16 others died with phthisis, at various periods after the operation; the subsequent history of 5 was not known; the rest are all now in good health.—The mortality was not affected by the duration of the disease, or the extent of disorganization of the joint. The proportion of men who undergo amputation in early stages of disease is greater than that of women; in later stages the proportion of women is greatest.—The operations for diseased joints in boys and girls under puberty are not successful; a larger proportion than in adults die from the effects of the operation, or do not recover their health after amputation.—In 5 cases of malignant disease, 2 died after operation; in 1 the disease returned within a year: the other 2 are living.—In other diseases, necrosis, caries, gangrene, elephantiasis, old ulcerations, and inconvenient limbs, all the patients recovered.—Of 6 cases of primary amputation of the thigh, only 1 recovered; and in that case the injuries were confined to the leg, below the knee. In all the fatal cases, the operation was performed after very severe injury.—All the operations on the leg (12 in number) succeeded.—Of 15 in the upper arm, 3 died; and of 14 in the forearm, 1 died.—Amongst the secondary operations, only 1 died, after amputation at the shoulder joint for a burn. The operations were mostly done by circular incision. The chief veins of the limb were tied whenever they bled, without any bad consequences. The stumps were generally dressed at the time of the operation. In several cases where the stump was left open after the operation there was secondary hæmorrhage, and in all of them union was very slow.—The healing of the wound, or the discharge of the patient, was retarded by so many accidental causes that it was not easy to make a fair estimate of the time occupied in the recovery. The forearm generally healed rather sooner than the upper arm, and the up-

per arm rather sooner than the leg: the thigh being much the latest. After amputation for diseased joints, the stumps healed sooner than in other diseases. The greatest delay was after primary operations for accidents.

Mr. ERICHSEN requested information of the author of the paper on one point—viz. the cause of the great difference of the rate of mortality in the operations of four surgeons of the infirmary, when contrasted with those performed by the other four? What was the kind of operation, and what the nature of the after-treatment? The paper went to show that amputation for disease was more successful in its results in the country than in London: this held good also with reference to the excision of joints. This, he believed, depended on the patients being less worn down by depressing causes in the country, and the after-treatment being influenced by purer air, &c. There seemed from the paper to be few deaths from pyæmia, hospital gangrene, &c.,—causes of death common in London. The mortality, however, from primary amputation of the thigh was as great in Oxford as elsewhere. This might, indeed, be regarded as the most fatal operation in surgery, the statistics from various institutions showing no single case of recovery. One out of six only had been successful in the Radcliffe Infirmary. He believed that the experience of the surgeons in the Crimea had been such as to induce the French to give up the operation altogether. Not one case, he believed, of primary amputation of the thigh had been successful.

Mr. HUSSEY replied, that as part of his paper had been read in abstract, the particulars of many cases were omitted; but these, if read, would have shown that several deaths resulted from pyæmia. He felt a delicacy in speaking of the practice of his colleagues with regard to the cause of the success or non-success of their operations. Mr. Erichsen had said that operations were more successful in the country than in London, and these causes were no doubt purer air, &c. It was a fact that, in London, he (Mr. Hussey) had never seen a case of what was called "union by the first intention:" the first case of the kind he had observed was in the country. With respect to primary amputation of the thigh with injury of the bone, he had never known a case of recovery: in one instance, in which the bone was cut in two from an accident, a patient under Mr. Lawrence's care had got well. When the soft parts only were injured, he had seen the operation succeed. He wished to ascertain the experience of London surgeons respecting amputation and excision for disease of a joint in patients under puberty. He believed that such operations were never required in the country; and he had come to the conclusion that when the joint was so diseased as to demand operative procedure, the patient, if operated on, would die from some constitutional effects of the disease.

Dr. BARKER knew two officers, each of whom had submitted to amputation of the thigh for gunshot wounds received in the Crimea. Both reco-

vered. The amputation in each case was performed within a few hours of the receipt of the injury.

Mr. PAGER remarked that the non-success of primary amputation of the thigh was not universal. Two successful cases had lately occurred in London. One of these was in the practice of Mr. Prescott Hewitt, in which the bone was extensively fractured. The other case occurred to himself; the injury was a gun-shot wound, the bullet passing through both condyles of the femur.

Mr. CURLING had seen many cases of recovery after primary amputation of the thigh. The results of this operation had been made to appear too gloomy by Mr. Erichsen.

Mr. ERICHSEN had referred to the statistics of the operation as given by Dr. Peacock. Thirteen were operated on; all died. The twelve patients mentioned by Dr. Lawrie all died, and ten in St. Thomas's Hospital also succumbed. In the hospital with which he was connected the successful cases formed about one-half, so that at that institution, at least, the results were not so gloomy as they appeared generally.

Mr. HUSSEY referred to the ten cases recorded by Mr. James, of Exeter, of whom six died.

Mr. ARNOTT observed that though the number of cases recorded in the paper was limited, they were yet sufficient from which to draw conclusions; they were ample in detail, and the results extended over many years, the history of some of the patients being carried on for a very long period. It seemed to be a matter of astonishment that primary amputation of the thigh in the Crimea had been so generally unsuccessful; but this operation was well known to have been most unfortunate in the Peninsular war, during which the proceeding was not resorted to unless most urgently demanded. The experience of his own hospital in London corroborated that of others. But in amputation for disease, his observation went to show that the majority of cases did well, and the length of the time which the disease had lasted did not seem to interfere with recovery. With respect to the question put by the author of the paper, regarding amputation or excision for diseased joints before puberty, one such case had come under his care; the elbow-joint was extirpated for disease, and the boy died from the consequences of the operation. Much of the success of these operations would depend on the kind of cases selected for its performance. If you removed the ends of the bones in a case in which the disease originated in the synovial membrane or the cartilage, the operation would most likely be successful; the contrary would be the case when the disease had commenced in the cancellous structure of the bone.

Mr. LEE referred to a case of amputation of the arm for disease of the elbow-joint, in which the ends of both the ulna and radius were found infiltrated for two or three inches with a puriform fluid. In this case excision of the joint would not have been successful. He had seen "union by the first intention" in two cases in his own practice.

Mr. COULSON inquired of Mr. Hussey, whether,

in the cases in which death had resulted from pyæmia, the operation had been resorted to in cases of injury or disease? and if for disease, how high above the diseased portion was the amputation performed? It was always better in such cases to make the seat of operation as far as possible from the diseased structure.

Mr. HUSSEY said, in some cases of pyæmia the operations were for disease, in some for accidents. The same symptoms were observed in all; in all there had been great hæmorrhage. With respect to the condition of the atmosphere at the time, the only peculiarity of any kind was the prevalence of a south-west wind, to which the wards were exposed.

Mr. ATHOL JOHNSON observed, that in the Hospital for Sick Children seven cases of amputation for diseased joints had occurred, and all did well.

Mr. CURLING had referred to the statistics of the London Hospital, with respect to primary amputation of the thigh: eleven cases were recorded; seven died, four recovered.

Mr. URE said that inflammation of the medullary membrane of the femur was the usual fatal consequence of primary amputation of the thigh. Nine such cases had been observed at La Charité. These cases were dressed on the old plan.

Mr. HUSSEY had looked for these conditions in the cases in the Radcliffe Infirmary, but had not found it.

Mr. ARNOTT had seen it in cases in which the wound did not heal kindly, and in connexion with inflammation of the veins, &c.

HARVEIAN SOCIETY.

DR. RAMSBOTHAM, PRESIDENT, IN THE CHAIR.

DR. SIEVEKING read a case of

ABDOMINAL CANCER,

which presented various points of interest, both in reference to diagnosis, and to the pathology of the cancerous disease. He was consulted in the month of October, 1854, on the case of a gentleman, whose history and symptoms were simply briefly these: He was single, aged sixty-five, corpulent, and had enjoyed good health till within fifteen months, when he was attended by Mr. Ray on account of an attack of bronchitis and an ulcer on the left leg. Since that time the left leg had been constantly cedematous. There had been no pain or redness, but the cedema persisted in spite of all remedies. One surgeon who saw him suggested that it might be owing to the pressure exerted by a truss, which was worn for a hernia, but the removal of the truss exercised no influence upon the cedema. The appetite failed; but through the tongue was foul, there was no sickness or vomiting. Dr. Sieveking found him slightly icteric, complaining of extreme debility, with much pain at the sacrum, especially in lying down; the cedema was considerable, involving the whole of the leg and left buttock. There was a

tumour discovered in the abdomen; the heart acted normally; the liver appeared small; no renal disease was traceable. Dr. Sieveking diagnosed at the time the presence of a malignant growth involving the iliac vessels of the left side, and extending across the sacrum. The treatment consisted in rest, tonics, occasional laxatives, and later, narcotics. Great improvement took place in regard to the digestive powers, the complexion, and the cedema, so much so that when, as the general powers did not improve, a further opinion was obtained from Dr. Burrows in the middle of November, there appeared to be no grounds for assuming the presence of any local affection, and the patient's condition was set down as solely one of anæmia. The prostration gradually increased, and death ensued in January, 1856.

The post-mortem examination revealed a large malignant mass involving the inguinal and lumbar glands, spreading over the sacrum, and enclosing the abdominal aorta and vena cava, which at one point were much constricted; the mass extended along the spinal column to above the pancreas. The growth consisted of fibrous tissue, arranged in a looped net-work, enclosing a soft medullary mass; the latter gave out a white creamy juice, which, like the substance itself, consisted of granular, well-formed corpuscles, of an uniform oval shape and sharp outline, without nuclei. There were no compound cells, or any cells resembling those ordinarily found in medullary cancer. There were copious exudation corpuscles. The left kidney was thoroughly disorganised; the cortical texture was replaced by a white growth, exhibiting under the microscope all the appearances of cancer—viz. every variety of nucleated cell-growth. The heart presented great fatty degeneration of the muscular fibre, and between the fibre was deposited much granular and corpuscular matter, which, under the circumstances, was regarded as cancerous. The other organs were healthy. Dr. Sieveking showed drawings of the morbid growth in the various parts, and drew attention to the different features presented in the primary growth, and in the secondary diseases of the left kidney.

Mr. BORHAM read a paper

ON THE PATHOLOGY OF APOPLEXY, MORE ESPECIALLY IN CONNEXION WITH PREGNANCY,

in which he remarked upon the complex nature of the subject in tracing the actual nature of the morbid change which induces apoplexy. The author divided his subject into two classes,—the *Morbid* and *Accidental*. The *Morbid* class was considered under three elements—

- 1st.—The state of the blood;
- 2nd.—The condition of vessels; and
- 3rd.—The diseased state of the structures surrounding those vessels.

The *Accidental* class comprised two heads—

- 1st.—A shock or accident;
- 2nd.—Mechanical pressure.

In passing in review the above five elements, the author illustrated them by cases drawn from his own experience or other trustworthy authority.

"The state of the blood" he considered a feature of the greatest importance; it was the germ (he stated) that generated and brought into existence the morbid state of the vessels and the structures surrounding them. It played that inscrutable law ever observable in Nature,—that of giving and taking away with the same hand. Especial attention was drawn to albuminuria. Albumen the author considered to be a great cohesive element in the blood; and by its loss, through the kidneys, the bond of union between the constituents of this fluid, he considered, was destroyed, and effusion would consequently ensue. Albuminuria evidently gave a hæmorrhagic tendency to the system, as was shown by the immense post-partum floodings which constantly affected those suffering from this disease; he also illustrated the case of a female who, suffering from it, died of apoplexy whilst pregnant,—four ounces of blood being found extravasated within the brain. He also traced its pathological connexion (by cases) with congestion, convulsions, effusion, and death. He showed the tendency to apoplexy produced by spirit-drinking, in diluting the blood and facilitating cerebral effusion; and also touched upon that state of the blood mentioned by Messrs. Andral and Gavarret, who seem to think that an essential connexion exists between cerebral hæmorrhage and a diminution in the amount of fibrine in the blood, with an increase in the quantity of blood globules. "The condition of the vessels" was illustrated by cases of aneurism, atheroma, tuberculous deposit, arteritis, pulpy softening, ossification, &c.,—states which rendered the arteries extremely liable to rupture from the force of the ordinary blood current. "The diseased state of the structures surrounding the vessels" embodied ramollissement, oedema of the brain, tubercles, gangrene, cancer, &c.,—morbid states which facilitated the rupture of the arteries by producing in them a loss of tone and texture, from constant contact and maceration. The Accidental class was represented by cases where a sudden blow or fall produced rupture and extravasation of the cerebral vessels; and where tumours, natural or morbid, produced apoplexy by mechanical pressure.

WESTERN MEDICAL AND SURGICAL SOCIETY.

Mr. BARNES read a case of

PERFORATING ULCER OF THE RECTUM.

The patient had been at times subject to an uncertain state of the bowels,—sometimes diarrhoea, sometimes constipation existing. After a recent confinement there was much pain, diarrhoea, and tympanitis. The last illness commenced on February 18th, with sickness and pain in the right side of the abdomen; the bowels were constipated, and there were no signs of peritonitic inflammation,—the symptoms apparently dependent upon imprudent diet. There was no hernia, but an evident fulness existed in the region of the sigmoid flexure of the colon. Purgatives, fomentations, and ene-

mata were ordered, and produced sufficient evacuations from the bowels. The symptoms continued much the same for the next day or so; the sickness then abated; and though the pain was lessened, there existed extreme restlessness. On the morning of the 22nd she was suddenly seized with all the symptoms of collapse, and the abdomen became enormously distended with tympanitis, but was free from pain on pressure. She gradually sank, and a post-mortem examination was instituted fifty hours afterwards. The peritoneum was everywhere glistening and free from redness; near the sigmoid flexure about an ounce of yellowish fluid was effused; the stomach and intestines were healthy, except at about seven or eight inches from the anus, where a thickened, hardened mass of diseased tissue existed, involving the entire circumference of the gut. This piece of bowel was removed, and upon being opened exhibited a thickened state of the sub-mucous tissue, the calibre of the canal being much reduced. The diseased surface extended over about four inches. The mucous membrane was softened and ulcerated in three places; one of the ulcers had perforated, another had nearly done so, and the third had only engaged the mucous coat; there was some yellowish tubercular matter between the ulcers; the mucous membrane was generally softened in the diseased portion of the bowel. The specimen was exhibited.

The points of interest in the case were the situation of the stricture, it being so high up, and so contradicting the opinion that stricture of the rectum is never beyond the reach of the finger passed into the anus. Another point to be noticed was the slight degree of the symptoms during life, and the absence of all peritoneal inflammatory appearances after death.

Mr. BARNES also introduced a specimen of

CANCER OF THE PYLORUS.

The patient had not complained of any symptoms except for a few weeks before death, during which time her countenance had assumed the peculiar cachectic expression so pathognomonic of organic mischief. Her chief symptoms were incessant vomiting about half an hour after every meal, the vomited matter being dark-coloured; sour eructations, and confined bowels. There was no severe pain, nor was any tumour discovered by any of those who saw her during this illness; there was no tenderness. Notwithstanding these negative symptoms, the author diagnosed cancer,—an opinion at variance with that of two other gentlemen who were called in consultation. The treatment consisted of rigid rules in diet, and mild aperients; the vomiting resisting strychnia, nux vomica and bismuth, and prussic acid. She finally sank from exhaustion.

After death the body was found much emaciated; there was no hardness in the region of the pylorus, but in the splenic region a hard mass was distinctly felt. Upon opening the abdominal cavity, this hardened feeling was proved to be the pylorus, the cardiac end of the stomach being pushed up under the ribs, and the stomach assum-

ing a horizontal position in its new situation. The duodenum was stretched across the vertebral column and the stomach. Upon opening the stomach, it was found to contain a large quantity of dark-coloured fluid, and the pyloric end was occupied by this cancerous growth; in this latter the mucous membrane was ulcerated and bleeding.

A remarkable fact in this case was that the sickness which had so exhausted her ceased entirely just before death, and the bowels, which had generally been constipated, acted regularly. The situation of the stomach, not to be accounted for by any inflammatory adhesions, as it was free and loose in its abnormal locality, accounted for the non-detection of the tumour during life.

PATHOLOGICAL SOCIETY OF LONDON.

MR. ARNOTT, PRESIDENT, IN THE CHAIR.

Drs. PEACOCK and BRISTOWE exhibited the

INTERNAL CAROTID ARTERIES AND THEIR BRANCHES, BLOCKED UP BY CLOTS,

from a female patient aged twenty-three, who died in St. Thomas's Hospital, eight days after an attack of hemiplegia of the left side. While in the hospital, she was partially conscious, so as to be able to recognise persons, and to speak with difficulty, and in a feeble voice. She was attacked four days before her admission, during the night, and she had a second seizure two days after admission, in which she was convulsed, and the paralyzed limbs were rigid. She did not again recover her consciousness and died two days after. She had two fits previously, one in 1849, and the other in 1853, and had suffered from severe headache at intervals since the first seizure. In the autumn of 1854, and spring of 1855, she was under treatment for secondary syphilis. She had a sister who died in an apoplectic attack.

On post-mortem examination, the surface of the cerebrum was much congested, especially anteriorly, and more extensively on the right side than on the left. There was less subarachnoid fluid than usual. On the section, the whole substance of the cerebrum was found to be congested; the anterior lobes and the two middle lobes were decidedly softened, though not greatly; the softening was most marked in the right corpus striatum. There was but little fluid in the lateral ventricles. The left internal carotid in its middle and anterior cerebral branches was locked up a short distance by a white membranous formation, and in the substance of the portion occupying the anterior cerebral artery, was a collection of thick, white, pus-like fluid. The right internal carotid and its branches were blocked up to the same extent as the left, but the material blocking them up was a recent pale and adherent coagulum. The other arteries at the base of the brain were healthy. There was distinct evidence of bronchitis. The heart was perfectly healthy, and presented no vegetations; the

viscera were also healthy. Under the microscope, the softened part of the brain was found to all appearance healthy. The material filling up the left cerebral artery presented the microscopic character of some form of degenerated clots; that in the right arteries presented the ordinary structure of recent coagula, but mixed with it were numerous corpuscles that were supposed to be due to inflammation; they were not white corpuscles of the blood or pus. Dr. Bristowe considered that the essential disease was arteritis, and that a recent attack in the right cerebral arteries, accompanied by the formation of a clot within them, had produced the softening of the brain and the death of the patient; but the history of the case, and the characters of the material blocking up the right arteries, tended to show that they had been the subject of a similar attack some time previously.

Dr. PEACOCK also exhibited a specimen of

FIBRINOUS SPUTUM,

expectorated by a middle-aged man, who had long laboured under asthma, but whose symptoms had recently more resembled those of phthisis. In this case the mass had a deep red colour when first expectorated, and its expulsion was preceded and followed by slight hæmoptysis.

DR. QUAIN exhibited a specimen having reference to the practice of

TOPICAL MEDICATION OF THE LARYNX.

taken from a woman who died in the Hospital for Consumption, Brompton, of phthisis, and having the symptoms of tuberculous laryngitis. The parts were interesting as showing that very extensive and severe disease need not necessarily extend beyond the reach of local applications. The ulceration had partially destroyed the epiglottis, was distinct around the glottis, and entering the larynx, had partially destroyed one of the chordæ vocales, and injured the other. Beyond the last-named parts there was not a trace of mischief. Dr. Quain said that, in such a case, if nitrate of silver or other local applications could be useful, there was no doubt whatever in his mind but that they could be directly applied in the form suggested by Dr. Horace Green; but it was not in such advanced cases that benefit could result from local or other applications. Still, in simple chronic laryngitis, in the earlier stages of the tuberculous form, in a congested, villous, or so-called relaxed state, and in certain irritable conditions of these parts, such as in the sore-throat of clergymen, he believed the application invaluable. He doubted the possibility of passing the sponge within the trachea in a vast number of cases, and he did not see the necessity for, or the advantage of, the practice; but he did believe, in some few cases, in which the passage was large, and not so sensitive as in other cases, and the sponge small, it can, and does, pass through the chordæ vocales. This conclusion he arrived at from several observations on the living, and experiments on the dead, body, Mr. Erichsen, who had lately written on the subject, was present,

and he was sure the Society would be glad to have his opinion on the subject.

Mr. ERICHSEN did not differ much from Dr. Quain in his views on this subject. From observations on the living and experiments on the dead subject, he believes the sponge can be applied *above* the vocal cords, but doubts its application *below* them. If the cords, however, were destroyed by division, it is possible to push the sponge down, but when we hear that it is pushed down into the bronchi, he doubts it. As to its application above the vocal cords, it is a most useful remedy in those cases referred to by Dr. Quain.

Dr. PEACOCK agreed with the possibility of its application, as stated by Dr. Quain. He differed from Dr. Quain in stating that it is of use in tuberculous cases. He had had pretty extensive experience of its use in those cases, and found that, instead of doing good, its application increased the irritation. In such cases he had quite abandoned its use, but in severe cases of laryngitis he used it with benefit and success.

Dr. SIMSON observed that he passed a male catheter through the vocal cords in one instance, and the patient could breathe. The instrument remained there for one month. It was a case in which tracheotomy was proposed, and the patient was relieved.

Dr. RISON BENNETT said it was very common to introduce the probang into the upper part of the larynx, and he fully agreed with Dr. Peacock in what he said of its uselessness in tuberculous affections of the larynx. It is of benefit in cases of chronic laryngitis and syphilitic affections of the mouth, but the mischievous effects of its indiscriminate application were many and frequent.

Dr. O'CONNOR could bear testimony to the great mischief following the indiscriminate application of nitrate of silver in affections of the throat, and especially tuberculous forms. He had recently under his care two cases in which the practice had been resorted to for many months, great misery to the patients, and aggravation of all their symptoms following. These cases were relieved by the decoction of bark and alum. The practice of topical medication of the larynx was, however, much older than any of the previous speakers appeared to be aware of. Sir Charles Bell used to employ it; the late Mr. Vance very extensively had recourse to it; and Dr. Stokes, in his work "On Diseases of the Lungs," mentions that Mr. Cusack, nearly thirty years ago, followed the practice with benefit. Of late it has been had recourse to as a sort of hobby in London, to the great injury of patients. He thought Dr. Green's book a dangerous guide for English practitioners, for if the cases there represented are correct, they are not to be met with in the practice of medical men in this country. He (Dr. O'Connor) considers the very excellent treatise of Dr. Ebenezer Watson, of Glasgow, a better guide. With regard to the tuberculous forms of laryngeal ulceration, he would depend more on constitutional treatment. In cases of chronic laryngitis and relaxed sore-throat, he thought topical applications invaluable.

Dr. POLLOCK exhibited a specimen of

ENLARGED HEART WITH THICKENING OF THE MITRAL AND TRICUSPID VALVES, A LARGE, WARTY, FIRM EXCRESCENCE BEING ATTACHED TO THE FREE MARGIN OF THE MITRAL VALVE.

The patient, aged twenty-six, died a few hours after admission to the Hospital for Consumption, under the care of Dr. H. Roe, but had been for one month an out-patient under Dr. Pollock. He had rheumatic fever five years previously, and when he presented himself was suffering from excessive dyspnoea, partial aphonia, slight cough, and considerable anasarca of the lower extremities. The physical signs noted at the time were, extensive cardiac dulness, a harsh double mitral murmur, and coarse bronchial râles over both lungs. The urine was albuminous, and the patient had a very cachectic appearance. On examination, fourteen hours after death, the lungs were found gorged with blood, and the air-tubes filled with mucous secretion. The heart weighed sixteen ounces and a quarter, and was much enlarged. The walls of the left ventricle were five-eighths of an inch in thickness. The mitral valve was much thickened, with granulations, firm, hard and rough to the touch. From the free margin of one division, depended a warty excrescence, which hung free into the ventricle, half an inch long. The right ventricle was thin and dilated; passing from the junction of the upper with the middle third of the anterior wall was a stout, round band, from which arose the chordæ tendineæ of the septal division of the tricuspid valve. The spleen weighed nineteen ounces, was friable, and gorged with blood. The liver was much congested, the cells containing much fatty matter; weight, 204 ounces. The kidneys were much enlarged; weight of each, twelve ounces and a half. Under the microscope, uriniferous casts of large size, some waxy, but most granular, in which were numerous fat-globules and epithelial *débris*.

Dr. OGLE related the particulars of a

CASE OF A CARCINOMATOUS TUMOUR WITHIN THE SPINAL CANAL PRESSING ON THE SPINAL CORD, AND PRODUCING PARAPLEGIA.

The tumour was of the size of a bantam's egg, situated on the right side of the spinal marrow, where it had produced absorption of much of the right laminæ, pedicle, and transverse process of the sixth cervical vertebra. The cord was considerably pressed upon by the growth, and twisted at this part, so that the right border had almost a directly posterior aspect. On microscopical examination, the tumour was found to consist of vast numbers of small, distinct, and rounded cells, mixed with a few large oval cells, containing nuclei, and also some amount of delicate fibrous tissue. No deposit of a similar kind existed in any other part of the body. The preparation was removed from a young woman, who having been more or less paralysed for some time, was brought into St. George's Hospital, with incomplete paralysis of all her limbs; both sensation and power of motion being greatly diminished. It was noticed that the

left upper and lower extremities were decidedly more affected than the right ones. This fact seemed in reference to the experiments lately performed by Brown-Sequard. The patient continued for several months in the same condition, and finally died of extensive bed-sores, and sloughing of the nates, &c.

Dr. OGLE exhibited a specimen of

**MALFORMATION OF TRACHEA AND OESOPHAGUS
WHICH COMMUNICATED WITH EACH OTHER IN AN
INFANT.**

The preparation showed perfect obliteration of the oesophagus at about three-quarters of an inch distance from the fauces. Some little way below this point, the trachea communicated with the oesophagus, which was patent as far as the stomach; the opening of communication being of a distinctly valvular character. The preparation was removed from a child who had been attended by Dr. B. Brown, and whose food on being swallowed had, partly at least, returned through the nostrils.

A Mirror

**OF THE PRACTICE OF
MEDICINE AND SURGERY
IN THE
HOSPITALS OF LONDON.**

Nulla est alia pro certo noscendi via, nisi quam plurimas et morborum, et dissectionum historias, tam aliorum proprias, collectas habere et inter se comparare.—MORGAGNI, *De Sed. et Caus. Morb.* lib. 14. Proximum.

ST. BARTHOLOMEW'S HOSPITAL.

Non-malignant Tumour of Six Months' Growth, developed within the Cavity of the Left Nostril; Absorption of the Nasal Bones and Cartilages; Successful Removal; Expected Return of the Disease.

(Under the care of Mr. LAWRENCE.)

We have recorded in previous Mirrors cases of tumours and malformations affecting the nose; amongst which we may refer to one of malformation of the nose, in a child of three years of age, under Mr. Thomas Wakley's care, at the Royal Free Hospital, and a follicular tumour involving the nose, under Mr. Ward's care, at the London Hospital. These two cases are full of practical value and replete with points of interest. The case we have the pleasure of recording to-day is one of tumour of the nose, which possesses many features of equal, we may add unusual, interest. Setting aside the great disfigurement which it produced in so prominent an organ, the patient's sufferings, already very great, threatened to be even more acute in a very little time, from extension of the disease; as it was, he felt very miserable from the interruption of many essential functions: thus he could neither smell, nor breathe through the nose; his sense of taste was affected; his eyes felt as if they were bulged out; and the influence of the disease on the neighbouring channels—especially the lachrymal—produced such an amount of discomfort and inconvenience, together with con-

stant pain, that he was ready to undergo any operation that would afford him even very temporary relief. The growth, moreover, of the tumour having been rapid, seemed to pronounce in favour of its malignancy; and an evident disinclination was manifested, on the part of several surgeons, to interfere with it at all, although, so far as a microscopic examination could be relied upon, it was pronounced benign. When we consider the misery in which the poor patient was living, the extension of the tumour and its effects on the neighbouring structures, and the exhaustion and fatal consequences which ultimately were certain to follow, we think most surgeons will agree with us that an operation was quite justifiable, more especially from the actual determination which the patient evinced to have something done, no matter what might be the consequences. Mr. Lawrence, therefore, did what most surgeons would have done under such circumstances, and removed a diseased mass which had involved all the bones and cartilages of the nasal organ; not even the nasal bones proper remained,—they had become absorbed, and in their place a few spiculae were found attached to the frontal bone, but which were not the remains of the nasal bones, as Mr. Lawrence distinctly stated. The results of the operation were most completely and rapidly successful; but the question arises, Will they be permanent? We fear not; in which view the operator himself coincides; for notwithstanding the tumour, so far as the histological evidence goes, is declared benign, we will remark that it possessed appearances which to an ordinary practised eye would be called malignant, and resembled in many parts true cancer. Should it reappear, the poor patient will have had a certain period of enjoyment of comparative comfort and ease, to gain which, at any time, surgical interference is perfectly proper.

Daniel L—, aged sixty-four, by trade a coal-porter, but has not worked at his occupation for upwards of a year, was admitted on the 4th of March. He has had an inguinal hernia of the right groin for many years, for which he has worn a truss; has always enjoyed perfect health until about two years ago, when, he states, he caught cold on entering a bath, since which time he became deaf. Six months ago a tubercle formed inside of the left nostril, which became outwardly prominent, and gradually enlarged. The nose began to swell as the tumour grew on the left side, and was attaining considerable magnitude, bulging it out in every direction. Two months ago the right nostril began to swell, the tumour having ulcerated through the septum from pressure. The swelling and enlargement of the entire nose now progressed, and attained really enormous dimensions, the width of the tip being two inches and a half; but the growth extended very much more on the left than on the right side. Some weeks before admission, the skin became red and inflamed, numerous small abscesses formed, a discharge came from the nostrils of a horribly offensive odour, and matter could be squeezed from the lachrymal ducts. The nasal discharge was at first bloody,

and then purulent. The eyes appeared as if they were bulged forward, although not displaced; and at times he felt considerably drowsy. He had lost the senses of smell and taste, and suffered constant and severe pain. He could breathe only a little through the right nostril. There was no evidence of disease in any other part of his body, although, from his cachectic look, he presented the appearance of one suffering from malignant disease. On examining the tumour, it felt quite soft in many places, pressure forcing matter out of the inner angle of both eyes; the bones of the cheek and face did not appear diseased; there was no disease of the antrum, although the left was much covered by the tumour. On careful examination by the mouth, the palatine arch was normal, not pressed downwards in the slightest degree, nor did the disease appear to extend backwards into the fauces; but the left nostril at the back of the mouth could be felt blocked up. Mr. Lawrence was disposed to let the case alone, particularly as the patient had been to one or two other hospitals, where surgical interference had been declined; but the friends of the poor man were so extremely anxious to have something done, and as the tumour appeared to be confined to the nose itself, although there was some absorption of the bones of the nose and face going on, that, with a view to afford temporary relief, he consented to remove the growth by operation, although its appearance was anything but favourable, as he remarked, to warrant this procedure.

March 8th.—The patient was brought into the operating theatre, and placed under the influence of chloroform. An incision was made in the median line from the forehead, across the bridge of the nose, through the left nostril, and then the upper lip, and the flaps were dissected outwards, and reflected back, the left first, and then the right. At this stage of the operation, the chloroform suddenly seemed to disagree with the man, as very loud stertorous breathing set in with rigidity of the jaws, and much bleeding was going on in the fauces and pharynx. Its administration was, therefore, stopped, the mouth cleared of blood, and the operation was rapidly continued. The diseased mass was quickly isolated, and carefully dissected away, and the whole was fortunately removed, after detaching its posterior adhesions in the back part of the nasal cavity. The great hollow thus left gave a most uncouth aspect to the man's face; but it showed the incorporation or absorption of the entire nasal bones and cartilages, their position being occupied by this tumour, which exceeded in size an ordinary orange, only somewhat lobulated, and more or less friable. The cavity was filled with a plug of cotton wool, fastened by a thread, and the parts were now brought together by means of stitches, except the lip, the cut edges of which were reconnected by pins, and a very decent appearance was obtained.

The tumour had not occupied any portion of the antrum on either side, but was exclusively developed within the cavity of the left nostril, spreading to the right, after destroying the septum, and ab-

sorbing the cartilages and bones of the nose, thus forming one large continuous mass, which produced such great deformity by bulging out on either side. On section, it somewhat resembled cancer, although there was some doubt as to its nature till a microscopic examination was made.

15th.—The patient was brought into the theatre, and shown to the pupils. He had gone on without a single bad symptom; the line of incision through the nose had completely united by first intention, but the pins in the lip were not yet removed, a small portion remaining ununited, from a constant habit, since the operation, of moving the lip. Mr. Lawrence stated that the tumour had been examined with the microscope, and contained no evidence of malignancy, but he thought, nevertheless, that it might return. The relief is therefore but temporary, although very great to the poor man. He hoped, however, it might continue for some time.

18th.—The pins still remain; the habit of moving the lip still continues; breathing is perfectly free in both nostrils; the patient is going on well.

22nd.—Pins removed; a small piece of the lip is unhealed, but is uniting by means of a strip of plaster; a little food getting through the lip has retarded union, as well as the patient's movements; no sense of smell nor taste.

29th.—Some slight swelling is present on the left side of the nose, the discharge from which is becoming offensive.

April 2nd.—He left the hospital.

LONDON HOSPITAL.

Stone in the Bladder of a Boy, associated with Phymosis; New Operation for the Latter; Subsequently Lithotomy; Recovery.

(Under the care of Mr. CURLING.)

A BOY, aged seven, was admitted into the hospital on account of incontinency of urine and painful micturition. Mr. Curling suspected the existence of stone in the bladder, and on proceeding to pass a sound, found the prepuce extremely elongated, and the orifice so contracted that he was unable to expose the orifice of the urethra.

On the 29th of March, Mr. Curling performed the following operation for phymosis, when the boy was under the influence of chloroform:—Taking a long, slightly-curved needle with a handle, and its point guarded by a piece of wax, (fig. 1,) he introduced it at the orifice of the prepuce, and carried it onwards above the glans penis to about a quarter of an inch from the corona, where it was thrust through the foreskin. The prepuce being raised and drawn forwards by means of the needle, a pair of curved forceps, with rough grooves inside the blades, was applied between the needle and the glans penis, so as to isolate the orifice and a large portion of the prepuce, (fig. 2.) These parts were then excised by a single stroke of a bistoury, carried along the convexity of the forceps. The cut edges of the skin and inner membrane were afterwards neatly adjusted, and secured with six

fine silk sutures, which were removed on the second day. The operation was followed by a little oedema, and a slight sore at the under part, consequent on the constant dribbling of the urine; otherwise the parts united well by adhesion.

FIG. 1.

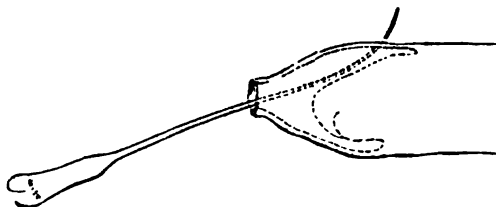
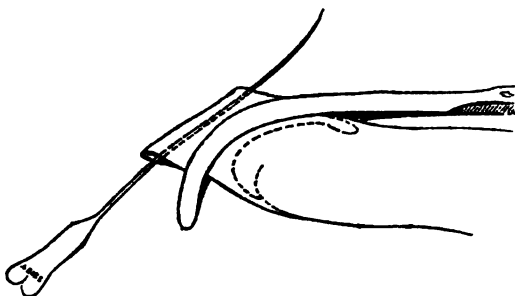


FIG. 2.



Mr. Curling remarked that this was a modification, and an improvement in, the most recent operation practised by Ricord of Paris; and in cases in which it was considered desirable to excise the foreskin, this mode of proceeding answered admirably, the wound caused by the division of the skin so exactly corresponding with the section of the inner membrane as to admit of a very accurate apposition of the divided parts, and of perfect union by adhesion.

March 11th.—Chloroform having been administered, Mr. Curling operated for lithotomy, and extracted a flat calculus, of a circular form, the size of half-a-crown; it consisted of uric acid, with a coating of the phosphates. In his remarks on this case, Mr. Curling observed he would have preferred lithotripsy; but as the stone was so large, and as the irritability of the bladder was such that it would scarcely retain any water, he performed the usual operation of lithotomy.

14th.—The patient has not had an unfavourable symptom. From this time, the progress of the case continued to a satisfactory termination.

ST. MARY'S HOSPITAL.

Double Lumbar and Psoas Abscess in the same Person; Erysipelas of the Back from the Puncture of a Grooved Needle; Opening of the Lumbar Abscess; Great Debility; Hectic Fever, and Pulmonary Tuberculosis.

(Under the care of Mr. COULSON.)

COMMON as these diseases are, it is not a very usual occurrence that the two sides of the body are

simultaneously affected, although there is of course no reason why it should not be so; a matter which is sufficiently obvious, since the labours of pathologists, from the days of Pott, have cleared up many obscure points connected with the origin, course, and termination of this almost universally fatal affection. The following case is interesting, as affording a very well marked example of the disease, together with that condition with which it is usually associated, in a greater or less degree, namely—tuberculosis of the lungs. The case is not quite perfect, inasmuch as the sequel, which cannot be far distant, has not yet taken place, or at least had not done so when the patient left the hospital. There are a few points in connexion with caries of the vertebræ and lumbar abscess which future observers would do well to take up and examine, such as the relation of tubercle generally to tubercle of the vertebral bones, and the manner in which the existence of tubercle in the latter position influences the progress of like matter deposited in the lungs,—how far, in short, the one may be vicarious of the other. To these questions no answer can be afforded in the present state of medical knowledge. It will be observed that the patient in this case had no angular curvature, nor projection of any of the spines of the vertebræ, but a certain straightness of the back was a prominent peculiarity. Now, it is this condition of the spine which is so generally found in the most fatal cases, a point long ago observed by Boyer, and subsequently verified by other surgeons; whereas, on the other hand, actual curvature of the spine is looked upon, in comparison with the straight position, as not so serious and much less fatal.

Thomas S—, aged twenty-nine, a labourer, who has resided all his life in the country, was admitted November 9th, 1855. He is a man of above the average height, and well-made; hair dark; irides blue. He states that there is no particular disease in his family. He attributes his illness, whether correctly or not may be a matter of opinion, to an accident which happened four years ago. Whilst carrying a sack of coals he slipped, and in attempting to prevent the sack of coals from falling he strained his back considerably. The effects of the strain passed off, however, after two days, and he felt nothing of it until one year afterwards. He then began to feel a little pain at the left side in the loins; and whenever he attempted to stoop forwards, he became conscious of an unpleasant sensation in the back. Together with this, there was a little difficulty in walking any distance. This state of things continued without material aggravation for two years. He was able to follow his occupation, but did not get about with any comfort. One year ago a swelling formed at the upper part of the left thigh, in the groin. It was soft, and unattended with pain. Soon afterwards this swelling broke, and discharged purulent matter: the opening has continued to discharge, more or less, ever since. During the course of the last twelvemonth he has frequently suffered from pain across the back, both

on the right and the left side, and he has become thinner than before. In March last, a swelling appeared at the left side of the spine in the lumbar region, but this tumour has not increased much in size since its first appearance, and the patient states that it is at times smaller than at others.

At present this latter swelling is as large as the palm of the hand. It is situated at the left side of the upper lumbar vertebrae, is flat, soft, and fluctuating. Pressure over it does not produce pain. There is no projection of any of the spines of the vertebrae; no angular curvature, but the general outline of the back is not quite natural, there being a certain straightness about it, as if the bones were not moved on each other with the usual facility. The patient cannot bend the body, partly owing to the pain the motion gives him, and he is not able to sit up straight in the bed. There is a small opening in the groin, capable of admitting a large probe, from which, as before stated, there has been a discharge for some time. The left leg is a little smaller than the other, and he cannot bring the knee up so as to make the angle formed by the leg and the body less than a right angle. The pulse is quiet, the appetite good, and he sleeps pretty well. Outwardly he has the appearance of a strong man, though there is not a superabundance of flesh on the bones. To take iodide of potassium and decoction of sarsaparilla three times a day.

Nov. 21st.—The patient is in much the same state as on admission. The swelling in the lumbar region is observed to be smaller at some times than at others, and this seems to depend on the freeness of discharge from the opening in the groin. It is probable that the two abscesses communicate with the same cyst, which would account for this relation of the quantity of discharge to the size of the tumour in the lumbar region.

24th.—The compound tincture of iodine to be painted over the lumbar swelling every day.

Dec. 15th.—Mr. Coulson introduced a grooved needle into the abscess in the loin, and ascertained that it contained pus. The day following erysipelas set in, and spread over the back from the prick of the needle upwards and downwards. For three or four days the patient took no food, and delirium was noticed at night.

On the 22nd, Mr. Coulson opened the abscess in the back by a moderately long incision, and as much as ten ounces of matter was evacuated. The patient was ordered to take tincture of bark and decoction of logwood every six hours, there being some diarrhoea present.

Two days after, the low state to which the man had been reduced, necessitated the administration of carbonate of ammonia and bark every four hours, with wine and nourishing food, of which latter, however, he was able to take but little. Ten grains of Dover's powder were ordered every night at bedtime.

On the 27th, his state had become very critical. He was lying on the back, breathing very hurriedly, and with a very anxious countenance; the tongue was brown and dry, and the lips covered

with sordes; pulse very weak and quick. To have a mutton-chop and porter.

Jan. 2nd.—The man is a little improved since the last report. The tongue is now dry and glazed; the speech somewhat indistinct. He says he is better. There is a little erysipelatous redness left on the right side of the back at its lower part. The discharge from both openings is considerable. He has lately become affected with a bad cough, and sweats at night a little. Has emaciated very considerably in the course of the last fortnight.

9th.—Cough very troublesome, sputa pneumonic, considerable hectic present; the expression of the countenance has completely altered, and the skin has a dingy unhealthy look; appetite not good; sleep very indifferent.

14th.—A little better; cough and expectoration as before. There is evidence, from the physical examination of the chest, that tuberculization is rapidly progressing in the apices of the lungs.

Feb. 14.—For the last month matters have become day by day gradually worse. The condition of the patient is now such as to render its early termination a matter of great probability. For the last few days a swelling has been slowly forming in the right groin, and there is now present in this position a large fluctuating tumour, pointing just below Poupart's ligament. This was opened by the house-surgeon, Mr. Gascoyne, and a quantity of greenish-coloured pus came away.

19th.—His friends having expressed a strong desire that he should be removed to his home, he was discharged, though the advanced state of the disease and the weak condition of the patient rendered the removal a matter of some risk, especially as it involved a journey of some length.

Necrosis of the Femur, from a Fall at a Height of Ten Feet on the Hip three Years before; Abscesses and Fistulae near the Trochanters; Removal of Necrosed Bone; Good Result.

(Under the care of Mr. COULSON.)

We have frequently witnessed the removal of portions of diseased bone from the shafts of most of the long bones of patients at different hospitals. Our "Mirror" contains the records of a number of these cases. At the present moment we can call to mind several cases under the care of Mr. Fergusson, at King's College, in which the femur was especially implicated; one in particular, last year, where the shaft was affected at its lower third for a period of twenty years, in a young man, who was perfectly relieved by the removal of a portion of the shell of the bone, on two occasions, which had been the source of irritation during that period of time. Such operations as these are the triumphs of modern surgery. It was only last Saturday that we saw Mr. Stanley remove several pieces of dead bone from the upper part of the shaft of the tibia of a man, whose leg we feel quite sure some years ago would have been amputated.

In the subjoined case, a portion of necrosed bone had produced a long-standing disease, which incapacitated the patient, who was a seaman, from earning his livelihood. It affords a good example of

exposed a sac filled with a quantity of coagula and broken up tissues, accompanied with much fœtor. A large poultice was applied to encourage suppuration. In the evening the patient became faint from loss of blood, which had oozed out from the incision. Ice and a tourniquet were applied, which arrested the bleeding, but as it continued more or less he was taken into the hospital.

Feb. 6th.—On admission, the patient was in a state of great depression from the long-continued loss of blood. A bandage with compress on the wound had been placed round the limb, so as to check the bleeding, but the oozing returned on removing the pressure. Mr. Erichsen decided on enlarging the wound, and then acting according to circumstances. Chloroform having been administered, the former incision was enlarged upwards and downwards, making a wound about eight inches in length. A considerable quantity of clotted blood of very offensive smell was turned out; some of these clots were rather large and hard, and one of them, about the size of two or three walnuts, was quite decolorized and leather-like in appearance. A cavity was now exposed, reaching from the popliteal space above the knee down to the heel, the walls of which were lined with brown, hardened coagula. On opening it out, and relaxing the pressure previously maintained on the femoral artery, the cavity slowly filled with dark venous-looking blood, which welled up from its lower end. No distinct bleeding-point—that is, no especial spot furnishing the blood—could be discerned; but the blood appeared to ooze out from the sides, but chiefly from below. There was no arterial hæmorrhage. It was now a question whether the wound should be enlarged below, so as to expose the lower end of the cavity; but in consequence of the patient being in immediate danger of death from hæmorrhage if the operation was prolonged, this proceeding was not adopted. The walls of the cavity were now touched by the actual cautery at all points where there was oozing, and the lower part was filled with lint soaked in the tincture of the sesquichloride of iron. A compress was placed over the lower end of the chasm, and a strip of water-dressing was put over the wound. The whole was then retained by a bandage from the toes up to just below the knee. After the operation the patient was removed to bed, and the limb elevated on pillows. When he recovered from the effects of the chloroform, he was given thirty drops of laudanum; diet, three pints of cold beef-tea.—Six p. m.: A little blood oozing through the bandage. Another roller was more firmly applied over the dressings. Restless: toes warm, but slightly sensible. Twenty drops of laudanum were administered.—Eight p. m.: Slight oozing of blood again. Carte's tourniquet was applied to the femoral artery. Ten drops of laudanum were given.

7th.—No more bleeding during the night; countenance rather anxious; rested a little during the night; pulse quick, full, and moderately strong; thirst; bowels confined; œdema of thigh

from tourniquet; toes warm, but quite insensible. An aperient draught was administered. In the evening he was much more composed, the bowels having acted well in the afternoon. Serous oozing through the bandages. Popliteal space swelling above the bandage. Opiate at night.

8th.—He has passed a better night. Pulse frequent and full; serous oozing through the bandages. Tourniquet removed.

9th.—Not so well, although he expresses himself easier since the removal of the tourniquet. Countenance more disturbed; occasional trembling of upper extremities, and twitching of face. General œdema of thigh gone down; but the swelling in the popliteal space has increased, and the integuments are assuming a dusky-red hue; it is very tender, and pressure on it produces an emphysematous crackling. All the bandages and dressings being removed this afternoon, except a large piece of lint filling up the lower end of the cavity, the integuments were found to have melted away at the outer and lower aspect of the leg, where the external compress had been placed. The muscles and their tendons were here exposed. The whole cavity being very foul and gangrenous, was injected with a solution of chloruret of soda, plugged and treated by compresses as before, the bandage reaching one-third up the thigh. To have eggs, beef-tea, and wine all day and night; and every four hours to have a draught composed of four grains of carbonate of ammonia, one drachm of the tincture, and an ounce and a half of the decoction of cinchona.

10th.—The patient has rallied; countenance improved; no twitchings nor tremulousness; surface warm, but not perspiring. Pulse 152, regular, full and moderately strong; tongue clean. Mr. Erichsen again examined the limb, and found the cavity in the popliteal space extending further up the back of the thigh, and that the thigh generally was œdematous and slightly discoloured. On consultation, it was agreed to seize this favourable moment for amputation, which was accordingly performed at half past ten A. M.

In consequence of the cavity extending up the back part of the thigh, Mr. Erichsen made a large anterior flap by transfixion, and a small posterior one, by a sweep of the knife, cutting from without inwards. The blood which oozed from the face of the stump was very thin and watery, and it required thirty-two ligatures to arrest the hæmorrhage. The actual cautery was pushed up a small part of the cavity remaining in the posterior flap. Two sutures were put in, and the stump bandaged up. After recovering from the chloroform, the patient was kept up by repeated doses of brandy and eggs.—Two p. m.: Oozing of blood through the bandages. The stump has been opened up; nothing but general oozing found. The surfaces of the flaps were now smeared over with strong fuming nitric acid, after the exhibition of chloroform. This being found insufficient, the actual cautery was applied to some points repeatedly; still pale watery blood oozed away. A large fold of lint, soaked in cold water, was then placed between the

flaps, and the whole was covered with a tight bandage.—Five P. M.: Oozing again commenced. The stump was covered with roughly powdered ice. Pulse intermittent. To take eggs, boiled mutton, and brandy.—Seven P. M.: Further oozing. A tighter bandage was now placed over the end of the stump, and ice was reapplied. Pulse better and regular. Complaining of sickness and vomiting. To take immediately a pill of opium and creosote.—Eleven P. M.: He gradually sank and died.

Dissection of the limb.—Shortly after amputation the limb was injected from the popliteal artery. On dissection, a large cavity was found in the calf, extending from above the knee nearly to the heel. Behind the knee the cavity was situated in the subcutaneous cellular tissue; while, lower down, it lay amongst the muscles. Superiorly, the external popliteal nerve lay quite exposed, its surface being dark and tough. The peroneal and posterior tibial arteries and their branches, which were well injected, were quite sound, the former being rather the larger in point of calibre. The walls of this cavity were quite black. No vein nor artery could be found opening into it. The injection sent into the arteries had escaped nowhere. Throughout the whole calf there were many ecchymoses which did not appear to have any connexion with the original cavity, but appeared quite independent. In many of these extravasations the blood appeared to be quite black and coagulated. They were found deep amongst the muscles, in their substance, and in the cellular tissue forming their sheaths and septa. The anterior part of the leg and the foot were sound. No visceral disease was found after death. The lungs and kidneys were quite healthy; but all the other organs quite pale and bloodless.

In his observations upon this case before the pupils, Mr. Erichsen remarked that when he first saw the patient foetid blood and dark disorganized coagula were oozing from the punctures. The history of the case was obscure and the diagnosis doubtful; but still it appeared to him the line of treatment was clear—to enlarge the openings, turn out the coagula, and search for the bleeding vessels. This was done, but no bleeding orifice could be detected, though the welling up of blood continued. The patient was therefore removed to the hospital. Two questions immediately suggested themselves; First: What was the source of the hæmorrhage? Does the blood come from an artery, from a vein, or from a general surface? Secondly: What line of treatment should be adopted? It was clear that the man would die gradually of hæmorrhage from the continued oozing, if not suddenly from a considerable gush of blood.

With regard to the first point, on considering the case, it appeared to him that there were four sources from which the blood might come, and, in discussing them, he thought it would be important to bear in mind the hæmorrhagic diathesis of the patient. The first source is *muscular rupture*: the man might have ruptured some muscular tissue of the calf, and in consequence of the bad state

of his blood, of his hæmorrhagic diathesis, a considerable effusion between the muscles of the calf might have been the consequence. The oozing, in fact, might occur from a torn muscle in a person of hæmorrhagic diathesis, just as it might from a cut lip or finger. This supposition was to a certain extent countenanced during the operation on the 6th of February, when he saw distinctly a piece of ruptured muscle; but it is difficult to believe that so large an extravasation could arise from mere muscular rupture of limited extent. Secondly: Could the origin of the effusion have been rupture of a vein? Considerable extravasation from venous rupture may occur in the leg. A case was sent to Mr. Erichsen four years ago, supposed to be one of malignant tumour of the upper and inner part of the calf; it was semi-solid. After examination, he concluded that it was a hæmatoma, and finding by a grooved needle it actually contained blood, he laid it open by an incision, and stuffed it. The effusion was found of venous origin; the woman has since done well. In the case before us, the dark blood came welling up from the bottom and sides of the cavity, and this would argue rather in favour of its venous origin. Thirdly: Was the hæmorrhage due to sudden rupture of an artery? The quantity of the effusion and the rapid formation of the swelling pointed to this hypothesis. Although spontaneous rupture may occur in the large arteries, as the aorta and iliacs, and in small vessels whose coats are thin, as those of the brain, arteries of the size and structure of those of the calf of the leg are rarely spontaneously ruptured; besides, the welling up of the blood from the bottom of the wound militated against this supposition. But if it were an arterial rupture, what artery had given way? It must have been either the posterior tibial or the peroneal. Before the operation the former pulsed well behind the inner ankle; the latter, low in the leg generally, is too small to give rise to such effusion as was present. Neither of these could be the cause of the bleeding. Fourthly: Is the effusion due to a ruptured aneurism, with diffusion underneath the deep fascia of the leg, then escaping through it into the cellular tissue beneath the superficial layer of muscles of the calf? There was no pulsation in the swelling, but this is not conclusive against its being aneurism, although it is sometimes absent in popliteal aneurism. During the operation, a mass of decolorized fibrine was turned out of the cavity, along with the dark clots. This looked, he observed, as if the cavity had been the result of the rupture of an aneurismal sac. Or an obstruction might exist in the aneurismal tumour, so as to prevent any escape of bright blood by the upper or cardiac opening into it; and the dark blood might regurgitate from the lower opening, being conveyed by the collateral vessels. This would agree with what was observed during the operation. If there had been an aneurism, then, and if it had burst under the deep fascia of the leg and made its way down to the heel, we should have had a state of things resembling as nearly as possible the case before us.

Now as to the treatment,—fortunately not altogether influenced by the diagnosis, though he could not say which of the four suppositions he had made as to the source of the hæmorrhage was the correct one,—it appeared to him the indications were clear. Three courses presented themselves: 1st, To lay the cavity open, turn out the coagula, search for the bleeding points, and to ligature them, if any. Failing in this, or in case the bleeding should be general or capillary, to apply the actual cautery to the walls, to plug the cavity, and apply compresses and a bandage. This would be the proper practice in cases where the extravasation resulted from venous hæmorrhage, and in bleeding dependent upon muscular rupture. It would be also applicable in cases of wounded or ruptured artery. On the supposition of diffused aneurism, it would also be the correct treatment under the circumstances in which this extravasation was,—namely, already opened up, putrid, and suppurating. Indeed, he believed that it is not often that a diffused popliteal aneurism is cured by the ligation of the femoral artery; more commonly gangrene results in such cases. Under all the circumstances, enlarging the wound and trying to arrest the hæmorrhage at the bleeding points—in fact, treating the case as one of wounded artery with diffused traumatic aneurism,—was the correct practice. 2nd: Ligature of the femoral artery was set aside for several reasons; compression did not materially influence the flow of blood; moreover the hæmorrhage was either venous or distal arterial; this operation, therefore, would have been of no service. From the state of the limb, also, it would, to a certainty, have been followed by gangrene. 3rd: Amputation. Putting aside the fear of hæmorrhage, the limb was so extensively disorganized that he might have to amputate to save the patient's life. He was so weak, and his blood so impoverished, that it was very doubtful, even supposing the hæmorrhage did not recur, whether he had the strength to sustain the reparative action necessary for healing.

On a subsequent occasion, Mr. Erichsen further remarked that the amputation was not performed for hæmorrhage, which had been controlled by the means employed, but for commencing gangrene and low cellulitis—that form of inflammation which so rapidly terminates in gangrene. The line of treatment was confirmed by the dissection: not any open vessel could be found in the walls of the cavity.

CENTRAL LONDON OPHTHALMIC HOSPITAL.

Eversion of the Eyelid from Disease.

(Under the care of Mr. HAYNES WALTON.)

MORE or less eversion of the lower eyelid, with closure of the outlets of the Meibomian glands, and a diseased state of the exposed conjunctiva, are occasional consequences of inflammation commencing in the edges of the eyelid, or "ophthalmia tarsi," sometimes also called "tenia tarsi," or "tenia palpebrarum," and may not only be a de-

formity, a source of much annoyance from the discharge of tears and pus on the cheek, but occasionally indeed of suffering. In temperate climates this is almost entirely confined to the poor, and there can be no doubt that, for the most part, neglect of the early stage of the affection is the common cause. But when, as in the tropics, the eyes are constantly exposed to the combined and trying influences of intense glare, clouds of dust, and heat, no care or attention will prevent it. It may be well to recognise the morbid changes that take place in the palpebra. All of its component parts are altered, and not the least, the fibrous cellular tissue around the hair follicles, and by the contraction of which, the displacement of the lid is probably most due. But the eversion is generally ascribed to the diseased conjunctiva alone. Now, it does not require much observation to learn that this membrane is the part least materially affected. It may become more or less congested at an early period, and in fact it generally does, but it does not get thickened, cuticular, or insensible till it has been exposed. No doubt the irritation to which it is subjected when so exposed keeps up chronic inflammation in all the parts. There is therefore a material difference between this state and ectropium, produced from swelling of the conjunctiva, the result of purulent ophthalmia, when the eyelid is actually turned out, and the upper one is chiefly so affected. This consideration prepares us for the statement of Mr. Walton, that the use of local applications are not productive of that beneficial influence that surgeons would seem to hope when they prescribe them, and that a surgical operation is the proper treatment. We select for reporting a severe and a mild form of the affection.

Symmetrical Ectropium of both Lower Eyelids.

—This was in a male, aged fifty-four, who dates the commencement of the affection four years ago. Each eyelid was everted; the conjunctiva was cuticular, although not much thickened; the cilia were nearly all lost, and the tarsal edges slightly rounded off. A muco-purulent secretion, varying much at times as to quantity, was always escaping on the cheek. The patient readily assented to Mr. Walton's proposal of an operation on one eye, which was thus executed:—The external commissure of the lids was drawn out, and the skin of the cheek pulled down by an assistant, in order to stretch and secure the eyelid. The whole of the exposed conjunctiva was then circumscribed by an incision, and dissected off; tenaculum forceps were used. Mr. Walton lays great stress on the importance of carrying the incision to the very margin of the tarsus. It is by the contraction which ensues that the eyelid is brought to its place. Sometimes cicatrization is rapid; sometimes exuberant granulations spring up, and retard the progress. This did not happen here. In six weeks the effect of the operation was as marked as in any case that we have witnessed at this hospital, but it did not accomplish all that was needed. The punctum lachrymale was not brought quite into contact with the eyeball, in consequence of

the thickening around it, hence all the tears were not taken up. The canaliculus was subsequently slit up by passing a probe into it, and cutting on the probe with a fine scalpel. This little tube is apt to close after having been divided, unless some precaution be taken to prevent it, and the best method is to examine the part a day or two after, and if adherent, to break it asunder with a probe. This was quite effectual. Similar operations were performed on the other eye, and the same beautiful result was as marked as in the first.

Partial Ectropium of the left lower Eyelid, with much thickening of the Tarsus.—J. H—, aged seventeen, had had ophthalmia tarsi in both eyes. In the right, the disease was arrested, and, except that the cilia were lost, there was no trace of it. In the left, the outer half of the eyelid was partially everted, and the exposed conjunctiva was swollen and the villi large. Moreover, the corresponding part of the tarsus was much thickened, and the rest of the margin of the lid was similarly affected in a slight degree. Mr. Walton performed the operation as above described. The effect was rapid; in three weeks the eyelid was in contact with the eyeball, and the lachrymal secretion passed to its proper destination. The thickening of the tarsal edge was scarcely reduced, but from our knowledge of these cases we are sure of its almost entire, if not complete removal, although months may elapse before the accomplishment of it. A very dilute form of the red oxide ointment was used, as the Meibomian secretion was vitiated and formed incrustation. As a rule, when this thickening is present, Mr. Walton prescribes cold applications,—either cold water or a weak spirit lotion.

The removal of conjunctiva from the tarsal cartilage, even when thickened, is not very readily accomplished. It is best done by using a small and pointed scalpel, and carrying the first incision through the entire thickness, laying hold of the edge with a pair of strong tenaculum forceps, and completing the dissection with a small knife.

MIDDLESEX HOSPITAL.

Cancer of the Breast; Excision by Mr. Arnott; Re-appearance of the Disease nine years after; Second Operation by Mr. Shaw; the Mother and Five Daughters affected with Cancer of the Left Breast.

(Under the care of Mr. SHAW.)

WE have seldom had an opportunity of bringing before the notice of our readers an example of cancer of the breast, where the hereditary tendency was better marked than in the instance which we record in our "Mirror" of to-day. The patient was one of six sisters, all of whom, with one exception, were the subjects of cancer of the left breast, of which disease, in the same breast, the mother died at the age of fifty. Now, we are not aware that cancer has a greater partiality for one breast than the other, nor can we appeal to any statistics for information upon this point, but the fact is sufficiently interesting—that we have here a record

of six persons affected with the disease in the left breast. So far as our observation extends, we have seen as many examples of the affection removed from the right as from the left breast, and this very recently at many of our large hospitals. Independently of this, we may call it, singular peculiarity in a whole family, the case presents a point of very great interest to the surgeon—namely, the length of time which had elapsed after the first operation (by Mr. Arnott) before the reappearance of the disease. This appears to have been nine years, but it is the more remarkable, as it is accompanied by the statement that the sister of the patient, who has already been twice operated upon, was free from disease for even a longer period. On reference to a table in Mr. Paget's work, it seems that out of seventy-four cases observed by Lébert and himself, in only two instances was the recurrence after operation delayed beyond six years; and he remarks that neither he nor Lébert ever met with a case in which the reappearance was delayed beyond eight years. In the sister of this patient, its recurrence seems to have been first noticed after the lapse of ten years and a half from the time of its removal.

For the notes of this case we are indebted to the kindness of Mr. Barley Balding, the Medical Registrar to the hospital.

A. H—, aged fifty-four, was admitted April 2nd, under the care of Mr. Shaw, with a tumour which had formed near the cicatrix remaining from the operation of excision of the left breast in December, 1846.

History.—Has always had good bodily health; was married at the age of twenty-seven; is the mother of six children—four are living and healthy; two died in infancy; has been a widow for the last nine years; was on a previous occasion a patient at this hospital, under the care of Mr. Arnott, having been admitted to the Cancer Ward on the 1st December, 1846. She had at that time a tumour on the left breast, about the size of a pigeon's egg, very hard, and apparently imbedded in the structure of the gland near its axillary margin; the integument was in no way affected, nor was the breast adherent to the deeper structures; the nipple was not retracted, but rather more prominent than natural. The tumour itself was neither painful nor tender. Her attention had been first directed to it, four weeks before admission, by a sensation of tingling and itching of the skin; and upon putting her finger to the spot she found a small hard nodule, about the size of a pea. This rapidly increased in size from the time it was first observed till she was admitted to the hospital. The youngest child, which she had suckled for eighteen months, was at that time two and a half years of age.

Family History.—The patient's mother died, aged fifty, of cancer of the left breast. She had six daughters, five of whom have suffered from cancer. The first died of cancer of the left breast, at thirty-three years of age: the disease had existed for three years. The second died of cancer of the left breast, aged fifty: the duration in this

case is not known. The third is the subject of the present case. The fourth is now living, aged fifty; has been twice operated upon for cancer of the left breast—the first time when thirty-eight years of age, the second time when forty-nine years of age, after the disease had reappeared five months. The fifth died at about forty years of age, from erysipelas, five weeks after an operation for removal of cancer of the left breast, the duration of which is not known. The sixth is at present in good health, the mother of three children.

On the 3rd of December, 1846, two days after admission, Mr. Arnott removed the whole gland with the nipple and areola. The tumour, after being removed, was pronounced to be scirrhus, as was also a smaller one, about the size of a pea, which was detected in a distant part of the gland. The wound healed favourably, and she was discharged from the hospital on the 19th of January, 1847.

Since the first operation she has felt no pain in the part, nor did she have her attention in any way directed to the cicatrix till the end of December, 1855. She was then suffering from catarrh, and whilst coughing felt a tingling sensation in the skin. Upon applying the hand she felt a small hard lump, scarcely the size of a nut, situated at the outer margin of the cicatrix, near the axilla. The tingling occasionally recurred, but she suffered no pain, nor did the tumour become in the least degree tender, though it continued to increase in size till her readmission to the hospital, three months after she had first noticed it. By this time it was as large as a walnut, and two others of smaller size had formed in the axilla; the one first noticed a month, the other a fortnight, previously.

State on admission.—There is a hard tumour, about the size of a walnut, lying partly under the cicatrix, but rather to its outer side. The skin covering it is not adherent, and the tumour itself appears to be freely moveable upon the parts beneath, so that it can easily be lifted up with the tips of the fingers. It is neither painful nor tender upon manipulation. Two enlarged glands, the size of a hazel-nut, and one much smaller, can be felt towards the anterior boundary of the axillary space.

Excision, April 3rd, by Mr. SHAW.—The patient wished the operation to be performed without chloroform, which was consequently not used. The tumour was easily separated from the adjacent structures, and afterwards the three enlarged glands in the axilla, which had been felt before the operation, were removed. Two others could then be detected, but in consequence of their proximity to an artery, it was not thought advisable to excise them. The parts were afterwards brought together by sutures, and the wound has now healed.

The tumour, upon section, and under the microscope, presented the usual appearances of scirrhus, but in some parts in a state of degeneration; numerous well-formed cancer-cells could be detected in it, and also in the largest glands.

THE
MEDICAL EVIDENCE
AND AN
Abstract of the General Evidence
ADDUCED ON THE
TRIAL OF WILLIAM PALMER,
AT THE
CENTRAL CRIMINAL COURT,
FOR THE
ALLEGED WILFUL MURDER BY POISON
OF
JOHN PARSONS COOK.

THE most intense interest is excited by this remarkable trial. The vast amount of medical and scientific evidence brought forward for the prosecution and the defence, is probably without a precedent. In order that the readers of *THE LANCET* may possess a complete record of this extraordinary inquiry, we publish a full and accurate report of the medical evidence adduced, both for the crown and the prisoner.

The Judges on the Bench were Lord Chief Justice Campbell, Mr. Baron Alderson, and Mr. Justice Creswell. The counsel for the prosecution were the Attorney-General (Sir Alexander Cockburn), Mr. E. James, Q.C., Mr. Bodkin, Mr. Welsby, and Mr. Huddleston. The counsel engaged on the part of the prisoner were Mr. Serjeant Shee, Mr. Grove, Q.C., Mr. Gray, and Mr. Kenealy. The jury was composed of Wm. Fletcher, foreman; Richard Dumbrell; William Mavor, Park-street, Grosvenor-square, veterinary surgeon; William Newman, Pimlico, bootmaker; George Miller, 38, Duke-street, Grosvenor-square; George Oakshott, West Ham, confectioner; Charles Bate, Surrey, brewer; William Eccleston, Ham-lane, West Ham, grocer; Samuel Mullen; John Over, Pimlico, grocer; William Nash, Bond-street.

FIRST DAY—WEDNESDAY, MAY 14TH.

THE ATTORNEY-GENERAL, in an address of more than four hours' duration, which has been acknowledged on all hands to be of a most masterly kind, opened the case on behalf of the Crown, and traced the antecedents of the prisoner and his pecuniary embarrassments towards the end of the year 1855. The deceased, Mr. Cook, was a sporting gentleman intimately known by Palmer, and who, in consequence of a race won by his mare, Polestar, at Shrewsbury, on the 13th of November, 1855, had won altogether upwards of £2000, of which sum he would have been entitled to receive at Tattersall's on Monday, November 19th, £1020, in addition to the stakes, which amounted to about £382. It appears that on Wednesday, November 14th, the day after the race before-mentioned, Palmer and Mr. Cook remained at the Raven hotel, at Shrewsbury, and late in the evening they were joined there by Mr. Fisher and a Mr. Herring, who were known to the parties. "Fisher went into a room in which he found Palmer and Cook drinking brandy-and-water. Cook gave him something to drink, and said to Palmer, 'You'll have some more, wont you?' Palmer replied, 'Not unless you finish your glass.' Cook said, 'I'll soon do that;' and he finished it at a gulp, leaving only about a teaspoonful at the bottom of the glass. He had hardly swallowed it, when he exclaimed, 'Good God! there's something in it; it burns my throat!' Palmer immediately took up the glass, and drinking what remained, said, 'Nonsense, there's nothing in it;' and then pushing the glass to Fisher and another person who had come in, said, 'Cook fancies there is something in the brandy-and-water—there's nothing in it—taste it.' On which one of them replied, 'How can we taste it! you've drunk it all.' Cook suddenly rose and left the room and called

Fisher out, saying that he was taken seriously ill. He was seized with the most violent vomiting, and became so bad that after a little while it was necessary to take him to bed. He vomited there again and again in the most violent way, and as the sickness continued, after the lapse of a couple of hours, a medical man was sent for. He came, and proposed an emetic and other means for making the sick man eject what he had taken. After that, medicine was given him—at first some stimulant of a comforting nature, and then a pill as a purgative dose. After two or three hours he became more tranquil, and about two o'clock he fell asleep and slept till morning. About eleven o'clock that night a Mrs. Brooks, who betted on commission and had an establishment of jockeys, went to speak to the deceased on some racing business, and in the lobby she saw Palmer holding up a tumbler to the light; and having looked at it through the gas, he withdrew to an outer room, and presently returned with the glass in his hand, and went into the room where Cook was, and in which room he drank the brandy-and-water." On the Thursday, Cook looked and felt ill, but the vomiting had ceased, and he went out upon the race-course, where a horse owned by Palmer on that day ran and lost—a circumstance that increased Palmer's embarrassment. Afterwards, on that day, Palmer and Cook returned to Rugeley, a few miles from Lichfield, in Staffordshire, where Cook went to the Talbot Arms hotel, exactly opposite the house where Palmer lived.

The Attorney-General, about this part of his address, incidentally remarked that after the death of Cook, antimony was found in the tissues of his body, and in the blood, but that it was not that substance, but strychnine, from the effects of which it was charged that Cook had died. The Attorney-General proceeded to give an account of the effects of strychnine upon the animal frame, and of the structures upon which it acts; and as his account is lucid, well adapted to afford information to the jury and the non-medical public, and proves that he had attentively studied this very necessary part of the subject, we here give it in his own words.

"You have no doubt heard of the vegetable product known as *nuxvomica*. In that nut or bean there resides a subtle and fatal poison, which is capable of being extracted from it by the skill of the operative chemist, and of which the most minute quantity is fatal to animal life. From a half to a quarter of a grain will destroy life; you may imagine, therefore, how minute is the dose. In the human organization, the nervous system may be divided into two main parts—the nerves of sensation, by which a consciousness of all external sensations is conveyed to the brain; and the nerves of motion, which are, as it were, the agents between the intellectual power of man and the physical action which arises from his organization. Those are the two main branches having their origin in the immediate vicinity of the seat of man's intellectual existence. They are entirely distinct in their allocations, and one set of nerves may be affected while the other is left undisturbed. You may paralyse the nerves of sensation, and may leave the nerves which act upon the voluntary muscles of movement wholly unaffected; or you may reverse that state of things, and may affect the nerves and muscles of volition, leaving the nerves of sensation wholly unaffected. Strychnine affects the nerves which act on the voluntary muscles, and it leaves wholly unaffected the nerves on which human consciousness depends; and it is important to bear this in mind—some poisons produce a total absence of consciousness, but the poison to which I refer affects the voluntary action of the muscles of the body, and leaves unimpaired the power of consciousness. Now, the way in which strychnine acting upon the voluntary muscles is fatal to life is, that it produces the most intense excitement of all those muscles, violent convulsions take place—spasms which affect the whole body, and which end in rigidity—all the muscles become fixed, and the respiratory muscles in which the lungs have play are fixed with an immovable rigidity, respiration consequently is suspended, and death ensues. These symptoms are known

to medical men under the term of tetanus. There are other forms of tetanus which produce death, and which arise from other causes than the taking of strychnine, but there is a wide difference between the various forms of the same disease, which prevents the possibility of mistake." (The learned counsel then explained the different symptoms which characterize traumatic tetanus and idiopathic tetanus, which latter is of comparatively rare occurrence in this country.) He then continued: "I have reason to believe than an attempt will be made to confound those different classes of disease, and it will be necessary, therefore, for the jury to watch with great minuteness the medical evidence upon this point. It will show that both in traumatic and idiopathic tetanus the disease commences with the milder symptoms, which gradually progress towards the development and final completion of the attack. When once the disease has commenced, it continues without intermission, although, as in every other form of malady, the paroxysms will be from time to time more or less intense. In the case of tetanus from strychnine it is not so. It commences with paroxysms which may subside for a time, but are renewed again; and whereas other forms of tetanus almost always last during a certain number of hours or days, when we deal with strychnine we deal with cases not of hours, but of minutes—in which we have no beginning of the disease, and then a gradual development to the climax; but in which the paroxysms commence with all their power at the very first, and terminate, after a few short minutes of fearful agony and struggles, in the dissolution of the victim." The Attorney-General added this: "Palmer was a medical man, and it is clear that the effect of strychnine had not escaped his attention, for I have a book before me which was found in his house after his arrest, called 'Manual for Students Preparing for Examination at Apothecaries' Hall,' and on the first page, in his handwriting, I observe this remark, 'Strychnine kills by causing tetanic fixing of the respiratory muscles.' I don't wish to attach more importance to that circumstance than it deserves, because nothing is more natural than that, in a book of this kind belonging to a professional man, such notes should be made; but I refer to it to show that the effect of that poison on human life had come within his notice."

On the night of Thursday, Nov. 15th, Mr. Cook took some refreshment, and went to bed at the "Talbot." On Friday, the 16th, he dined with Palmer. He returned to this inn at ten o'clock that night, perfectly well and sober, and went to bed.

On Saturday, November 17th, at an early hour, Palmer came to Cook at the "Talbot," and ordered coffee for him; this was given by the chambermaid, Elizabeth Mills, to Palmer, who gave Cook the coffee. Immediately after taking it the same symptoms set in which had occurred at Shrewsbury. Throughout the whole of that day and the next the prisoner constantly administered various things to Cook, who continued to be tormented with that incessant and troublesome sickness. Some toast-and-water was brought over from the prisoner's house, instead of being made at the inn, as it might have been, and again the sickness ensued. It seems also that Palmer desired a woman named Roney to procure some broth for Cook from the "Albion." She obtained it, and gave it to Palmer to warm, and when Palmer had done so he told her to take it to the "Talbot" for Mr. Cook, and to say that Mr. Smith had sent it—there being a Mr. Jeremiah Smith, an intimate friend of Cook. Cook tried to swallow a spoonful of the broth, but it immediately made him sick, and he brought it off his stomach. Palmer soon afterwards came over to the inn, and on being informed that Cook could not take the broth, he insisted that he must take it, and had it brought up-stairs again. Cook tried to take it again, but again he began to vomit, and threw the whole off his stomach. It was then taken down-stairs, and a woman at the inn, thinking that it looked nice, took a couple of tablespoonfuls of it; within half an hour she was also taken severely ill. Vomiting came on, and continued almost incessantly for five or six hours. She was

obliged to go to bed, and she had exactly the same symptoms which manifested themselves in Cook's person. About three o'clock on that day (Saturday, 17th) Mr. Bamford, an old medical practitioner at Rugeley, was called to see Cook, who, he had been informed, was suffering from bilious diarrhoea. Mr. Bamford found Cook suffering from violent vomiting, and with his stomach so irritable as to be unable to retain anything. But he found to his surprise that the pulse of the patient was perfectly natural—that his tongue was quite clean, his skin quite moist, and that there was not the slightest trace of fever, or, in short, of any of those symptoms which might be expected in the case of a bilious man. Coffee was brought up to Cook at four o'clock when Palmer was there, and he vomited immediately. At six, some barley-water was taken to him when Palmer was present, and the barley-water did not produce vomiting. At eight some arrowroot was given him. Palmer was present, and vomiting took place again. That evening Mr. Bamford called again, and finding that the sickness still continued he prepared for the patient two pills, containing half a grain of calomel, half a grain of morphia, and four grains of rhubarb.

On the following day, Sunday, between seven and eight in the morning, Mr. Bamford was again summoned to Cook's bedside, and found the sickness still recurring, but failed to detect any symptoms of bile. He visited him repeatedly in the course of that day, and on leaving him in the evening found that, though the sickness continued, the tongue was clean, and there was not the slightest indication of bile or fever. And so Sunday ended.

On Monday, the 19th, Palmer left Rugeley for London. Before starting, however, he called in the morning to see Cook, and ordered him a cup of coffee. He took it up himself, and after drinking it Cook vomited. After that Palmer took his departure. Mr. Bamford afterwards called, and administered some more medicine. Cook improved, left his bed in the middle of the day, sat up for several hours, and was altogether much better. On Monday night, the 19th, Palmer, who had left for London in the morning, returned to Rugeley, where he arrived about nine o'clock. [We here shall follow, with very little omission or alteration, the narrative of the Attorney-General, on whom rested the responsibility of supporting his allegations by evidence.] Palmer, on "arriving at Rugeley, about nine o'clock at night, at once proceeded to visit Cook at the 'Talbot Arms,' and from that time till ten or eleven o'clock he was continually in and out of Cook's room. In the course of the evening he went to a man named Newton, assistant to a surgeon named Salt, and applied for three grains of strychnine, which Newton, knowing Palmer to be a medical practitioner, did not hesitate to give him. Mr. Bamford had sent on this day the same kind of pills that he had sent on Saturday and Sunday. It was the doctor's habit to take the pills himself to the 'Talbot Arms,' and entrust them to the care of the housekeeper, who carried them up-stairs; but it was Palmer's practice to come in afterwards, and evening after evening, to administer medicine to the patient. There is no doubt that Cook took pills on Monday night. Whether he took the pills prepared for him by Mr. Bamford, and similar to those which he had taken on Saturday and Sunday, or whether Palmer substituted for Mr. Bamford's pills some of his own concoction, consisting in some measure of strychnine, I must leave to the jury to determine. Certain it is, that when Palmer left Cook at eleven o'clock at night the latter was still comparatively well and comfortable, and cheerful, as in the morning. But he was not long to continue so. About twelve o'clock the female servants in the lower part of the house were alarmed by violent screams, proceeding from Cook's room. They rushed up and found him in great agony, shrieking dreadfully, shouting 'Murder!' and in intense pain. The eyes were starting out of his head. He was flinging his arms wildly about him, and his whole body was convulsed. He was perfectly conscious, however, and desired that Palmer should be sent for without delay. One of the women ran to fetch him, and he attended in a few minutes. He

found Cook still screaming, gasping for breath, and hardly able to speak. He ran back again to procure some medicine, and on his return Cook exclaimed, 'Oh dear, doctor, I shall die!' 'No, my lad, you shall not,' replied Palmer; and he then gave him some more medicine. The sick man vomited almost immediately, but there was no appearance of the pills in the utensil. Shortly afterwards he became more calm, and called on the women to rub his limbs. They did so, and found them cold and rigid. Presently the symptoms became still more tranquil, and he grew better. His frame, exhausted, now fell gradually into repose, and he began to doze.

"So matters remained till the morrow, Tuesday, the 20th. On the morning of that day Cook was found comparatively comfortable, though still retaining a vivid impression of the horrors he had suffered the night before. He was quite collected, and conversed rationally with the chambermaid. Palmer meeting Mr. Bamford that same day, told him that he did not want to have Cook disturbed, for that he was now at his ease, though he had had a fit the night before. This same morning, between the hours of eleven and twelve o'clock, Palmer went to the shop of Mr. Hawkins, a druggist, at Rugeley. He had not dealt with him for two years before. But on this day Palmer went to Mr. Hawkins's, and, producing a bottle, informed the assistant that he wanted two drachms of prussic acid. While it was being prepared for him, Mr. Newton, the same man from whom he had on a former occasion obtained strychnine, came into the shop, whereupon Palmer seized him by the arm, and observing that he had something particular to say to him, hurried him into the street, where he kept talking to him on a matter of the smallest possible importance." A gentleman known to Mr. Newton came up, and to whom Newton turned aside to speak. Palmer, relieved by this accident, went back into the shop, and asked, in addition, for six grains of strychnine and a certain quantity of Battley's solution of opium. He obtained them, paid for them, and went away. It is stated that during the course of that morning (Tuesday, Nov. 20th) coffee and broth were sent to Cook by Palmer, and that vomiting again ensued, and continued through the whole of the afternoon. On Sunday (18th) Palmer had written to Mr. Jones, surgeon at Lutterworth, in Leicestershire, and a personal friend of Cook, to come and see him as soon as possible, alleging that he was suffering from "a severe bilious attack, accompanied with diarrhoea." We here again resume the details given by the Attorney-General:—

"Mr. Jones, being himself unwell, did not come to Rugeley till Tuesday. He arrived at about three o'clock on that day, and immediately proceeded to see his sick friend. Palmer came in at the same moment, and they both examined the patient. Mr. Jones paid particular attention to the state of his tongue, and remarked, 'That is not the tongue of bilious fever.' About seven o'clock that same evening, Mr. Bamford called, and found the patient pretty well. Subsequently the three medical men (Palmer, Bamford, and Jones) held a consultation: but before leaving the bedroom for that purpose, Cook beckoned to Palmer and said, 'Mind, I will have no more pills or medicine to-night.' They then withdrew and consulted. Palmer insisted on his taking pills, but added, 'Let us not tell him what they contain, as he fears the same results that have already given him such pain.' It was agreed that Mr. Bamford should make up the pills which were to be composed of the same ingredients as those that had been administered on the three preceding evenings. Mr. Bamford repaired to his surgery and made them up accordingly. He was followed by Palmer, who asked him (Mr. Bamford) to write the directions how they were to be taken. Mr. Bamford, though unable to understand the necessity of his doing so, complied with Palmer's request, and wrote on the box that the pills were to be taken at 'bedtime.' Palmer then took them away, and gave either those pills or some others to Cook that night. It is remarkable, however, that half or three-quarters of an hour elapsed from the time he left Mr. Bamford's surgery until he

brought the pills to Cook. When at length he came, he produced two pills, but before giving them to Cook, he took especial care to call Mr. Jones's attention to the directions on the lid, observing that the writing was singularly distinct and vigorous for a man upwards of eighty. This was about half-past ten at night. The pills were then offered to Cook, who strongly objected to take them, remarking that they had made him ill the night before. Palmer insisted, and the sick man at last consented to take them. He vomited immediately after, but did not bring up the pills. Jones then went down and took his supper, and he will tell you that up to the period when the pills were administered Cook had been easy and cheerful, and presented no symptom of the approach of disease, much less of death. It was arranged that Jones should sleep in the same room with Cook, and he did so; but he had not been more than fifteen or twenty minutes in bed when he was aroused by a sudden exclamation and a frightful scream from Cook, who, starting up, said, 'Send for the doctor immediately; I am going to be ill as I was last night!' The chambermaid ran across the road, and rang the bell of Palmer's house, and in a moment Palmer was at the window. He was told that Cook was again ill. In two minutes he was by the bedside of the sick man, and, strangely, volunteered the observation, 'I never dressed so quickly in my life.' Cook was found in the same condition, and with the same symptoms as the night before, gasping for breath, screaming violently, his body convulsed with cramps and spasms, and his neck rigid. Jones raised him, and rubbed his neck. When Palmer entered the room, Cook asked him for the same remedy that had relieved him the night before. 'I will fetch it,' said Palmer. In a few minutes he returned with two pills, which he told Jones were ammonia, though I am assured it is a drug that requires much time in the preparation, and can with difficulty be made into pills. The sick man swallowed these pills, but brought them up again immediately. He was instantly seized with violent convulsions; by degrees his body began to stiffen out; then suffocation commenced. He repeatedly entreated to be raised. They tried to raise him, but it was not possible; the body had become rigid as iron, and it could not be done. He then said, 'Pray, turn me over!' They did turn him over on the right side. He gasped for breath, but could utter no more. In a few moments all was tranquil. Jones leant over him to listen to the action of the heart. Gradually the pulse ceased—he was dead."

We pass over, in this place, everything connected with monetary transactions or motives which might have led Palmer to desire the death of Cook, but which were strongly dwelt upon by the counsel; and we omit the proceedings of Palmer on the day when he was absent from Cook and in London, as also most of the circumstances after the death of Cook, which, in so far as they are of a medical character, will be found detailed in the evidence we publish. But it must be mentioned that on Sunday, November 16th, five days after the death of Cook, Palmer called on Mr. Bamford and induced him to write a certificate of the cause of death, as from "apoplexy;" and that on the day before the post-mortem examination which was instituted at the desire of Mr. Stevens, the step-father of the deceased, it is stated that Palmer sent for Newton, and after they had had some brandy-and-water, asked him how much strychnine he would use to kill a dog. Newton replied, "from half-a-grain to a grain." "And how much," inquired Palmer, "would be found in the tissues and intestines after death?" "None at all," was Newton's reply. Two post-mortem examinations of the body were subsequently made, one in November, when the contents of the stomach were sent to London for examination, and the other in January, when the spinal cord was chiefly examined.

At the termination of his long and able address to the jury, the Attorney-General made the following observations:—"The body was submitted to a careful analysis, and I am bound to say that no trace of strychnine was found. But I am told that although the

presence of strychnine may be detected by certain tests, and although indications of its presence lead irresistibly to the conclusion that it has been administered, the converse of that proposition does not hold. Sometimes it is found, at other times it is not. It depends upon circumstances. A most minute dose will destroy life, from half to three-quarters of a grain will lay the strongest man prostrate. But in order to produce that fatal effect, it must be absorbed into the system, and the absorption takes place in a greater or less period according to the manner in which the poison is presented to the surfaces with which it comes in contact. If it is in a fluid form it is rapidly taken up and soon produces the effect; if not, it requires to be absorbed, and the effects are a longer time in showing themselves. But in either case there is a difficulty in discovering its presence. If it acts only on the nervous system through the circulation, an almost infinitesimal dose will be present. And, as it is a vegetable poison, the tests which alone can be employed are infinitely more delicate and difficult than those which are applied to other poisons. It is unlike a mineral poison, which can soon be detected and reproduced. If the dose has been a large one death ensues before the whole has been absorbed, and a portion is left in the intestines; but if a *minimum* dose has been administered a different consequence follows, and the whole is absorbed. Practical experience bears out the theory that I am enunciating. Experiments have been tried which show that where the same amount of poison has been administered to animals of the same species death will ensue in the same number of minutes, accompanied by precisely the same kinds of symptoms; while in the analysis afterwards made, the presence of poison will be detected in one case and not in another. It has been repeated over and over again that the scientific men employed in this case had come to the conclusion that the presence of strychnine cannot be detected by any tests known to science. They have been grievously misunderstood. They never made any such assertion. What they have asserted is this—the detection of its presence, where its administration is a matter of certainty, is a matter of the greatest uncertainty. It would, indeed, be a fatal thing to sanction the notion that strychnine, administered for the purpose of taking away life, cannot afterwards be detected! Lamentable enough is the uncertainty of detection! Happily, Providence, which has placed this fatal agent at the disposition of man, has marked its effects with characteristic symptoms distinguishable from those of all other agents by the eye of science. It will be for you to say whether the testimony that will be laid before you with regard to those symptoms does not lead your minds to the conclusion that the deceased came to his death by poison administered to him by the prisoner. There is a circumstance which throws great light upon this part of the case. Some days before his death this man was constantly vomiting. The analysis made of his body failed to produce evidence of the presence of strychnine, but did not fail to produce evidence of the presence of antimony. Now, antimony was not administered by the medical men, and unless taken in a considerable quantity it produces no effect, and is perfectly soluble. It is an irritant, which produces exactly the same symptoms as those which were produced in this case. The man was sick for a week, and antimony was found in his body afterwards. For what purpose can it have been administered? It may be that the original intention was to destroy him by means of antimony—it may be that the only object was to bring about an appearance of disease so as to account for death. One is lost in speculation. But the question is whether you have any doubt that strychnine was administered on the Monday, and still more on the Tuesday when death ensued? And if you are satisfied with the evidence that will be adduced on that point, you must then determine whether it was not administered by the "prisoner's hand."

The witnesses were then called.

ISAIAH FURBER deposed to the circumstance already

mentioned of his having gone into the inn at Shrewsbury on Tuesday night, Nov. 13th, when Cook complained that there had been something in his brandy-and-water; and he added, Cook had left the room, and then came back and called me from it. We went to my own sitting-room. He there told me he was very ill and very sick, and asked me to take his money. He said he was very sick, and he thought "that d— Palmer" had dosed him. On finding Cook vomiting violently, Mr. Fisher stated that he afterwards sent for a surgeon, Mr. Gibson, who came and stayed with Cook from about half-past twelve till two o'clock in the (Wednesday) morning, and sent medicine, which relieved the patient. Mr. Fisher further added, that Palmer alleged Cook was drunk, whereas he was not at all intoxicated.

THOMAS JONES corroborated the statement of the preceding witness; as did GEORGE READ, who deposed that he had brandy-and-water in the same room with Palmer and Cook on the evening in question, but it did not make him ill. His brandy, however, was taken from another decanter.

WILLIAM SCARFE GIBSON.—I am assistant to Mr. Heathcote, surgeon, of Shrewsbury. On the 14th of November last I was sent for, and went to the hotel, Shrewsbury, between twelve and one o'clock at night. I saw Mr. Cook there. He was in his bed-room, but not in bed. He complained of pain in his stomach and heat in his throat. He also said he thought he had been poisoned. I felt his pulse and looked at his tongue, which was perfectly clean. He appeared much distended about the abdomen. I recommended an emetic. He said that he could make himself sick with warm water. I sent the waitress for some. She brought about a pint. He drank all the warm water. Having used a tooth-brush, he was sick. I examined the vomit; it was perfectly clear. I sent him two pills and a draught. The pills were a compound rhubarb pill and a three-grain calomel pill, to be taken immediately, and the draught, which was a compound of senna, magnesia, and aromatic spirit, was to be taken twenty minutes afterwards. It was what is called a black draught. Half an hour afterwards, I gave to Jones, for Cook, an anodyne draught. I did not see Cook afterwards. (Cross-examined.) I treated it as a case of poisoning. I did not observe anything in the vomit which led me to believe he had been poisoned. He appeared to be a little excited, but he was quite sensible what he was doing and saying. His brain had been stimulated with brandy-and-water. The idea of having taken poison would have some effect upon it. I thought calomel necessary on account of the distended state of the bowels. I saw some bile on the edge of the basin, but it must have been thrown up before he took the warm water. The piece of bile was about the size of a pea. The water thrown up was perfectly clean. Cook's tongue was quite clean. If the stomach had been wrong any length of time, the tongue would have been discoloured.

ELIZABETH MILLS, the chambermaid at the "Talbot Arms," Rugeley, deposed to the sickness of Cook there, during Saturday, the 17th, and Sunday, and to broth having been brought for Cook between twelve and one o'clock on Sunday, (18th.) She added, I took some of that broth up to Cook's room in the same cup in which it was brought. It was hot. I tasted it. I drank about two tablespoonfuls. In about half an hour or an hour I was sick. I vomited violently during the whole afternoon till about five o'clock. I was obliged to go to bed. I vomited a great many times. During the morning, I had felt perfectly well, and had not taken anything that could disagree with me. It was before dinner that I took the broth. I went down to work again about a quarter before six o'clock. On the Sunday evening, I saw Mr. Cook; he did not appear to be any worse. He seemed to be in good spirits. The illness seemed to be confined to vomitings after taking food.

The witness stated also that—On Monday (19th), after I had gone to bed, about eight or ten minutes before twelve o'clock, the waitress, Lavinia Barnes, called

me up. While I was dressing, I twice heard screams from Cook's room. I went down to Cook's room. As soon as I entered the room, I saw him sitting up in bed. He desired me to fetch Palmer directly. I told him Palmer was sent for, and walked to his bed-side. He was sitting up, beating the bed-clothes with both his hands and arms, which were stretched out. When I asked him to lay his head down, he said, "I can't lie down; I shall be suffocated if I lie down. Oh, fetch Mr. Palmer!" The last words he said very loud. I did not observe his legs, but there was a sort of jumping or jerking about his head and neck, and his body. Sometimes he would throw back his head upon the pillow, and then raise it up again. He had much difficulty in breathing. The balls of his eyes projected very much. He screamed again three or four times while I was in the room. He was moving and knocking about all the time. Twice he called aloud "Murder!" He asked me to rub one hand. I found it stiff. It was the left hand. It was stretched out. It did not move. The hand was about half shut. All the upper part seemed to be stiff. I did not rub it long. While I was rubbing it, the arm, and also the body, seemed to twitch. Cook was perfectly conscious. When Palmer came in, he recognised him. He was throwing himself about the bed, and said to Palmer, "Oh, doctor, I shall die." Palmer replied, "Oh, my lad, you won't!" Palmer just looked at Cook, and then left the room, asking me to stay by the bed-side. In about two or three minutes, he returned. He brought with him some pills. He gave Cook a draught in a wine-glass, but I cannot say whether he brought that with him. He first gave the pills, and then the draught. Cook said the pills stuck in his throat, and he could not swallow them. Palmer desired me to give him a teaspoonful of toast-and-water, and I did so. His body was still jerking and jumping. When I put the spoon to his mouth, he snapped at it, and got it fast between his teeth, and seemed to bite it very hard. In snapping at the spoon, he threw forward his head and neck. He swallowed the toast-and-water, and with it the pills. Palmer then handed him a draught in a wine-glass, which was about three parts full. It was a dark, thick, heavy-looking liquid. Cook drank this. He snapped at the glass as he had done at the spoon. He seemed as though he could not exactly control himself. He swallowed the draught, but vomited it immediately into the chamber utensil. I supported his forehead. The vomit smelt like opium. Palmer said he hoped either that the pills had stayed on his stomach, or had not returned. He searched for the pills in the vomit with a quill. He said, "I can't find the pills," and he then desired me to take the utensil away, and pour the contents out carefully to see if I could find the pills. I did so, and brought back the utensil, and told him I could not see the pills at all. Cook afterwards seemed to be more easy. That was about half an hour or more after I had first gone into the room. During the whole of that time, he appeared to be quite conscious. When Cook was lying more quiet, he desired Palmer to come and feel how his heart beat, or something of that sort. I left Cook about three o'clock in the morning. He was not asleep, but appeared to be dozing. Palmer was sitting in the easy chair, and I believe he was asleep. About six o'clock, I saw Cook again. Palmer had gone. I said, "What do you think was the cause of all that agony?" He said, "The pills which Palmer gave me at half-past ten." On the next night, (Tuesday, the 20th,) the witness was again called up hastily, but Mr. Jones being then with Cook, she stated that she ran for Palmer, who answered her out of a window of his house, and came to the "Talbot" in two or three minutes. The circumstances attending the death, as stated by this witness, correspond with those related by the Attorney-General. She deposed that after the death she saw Palmer searching in the pocket of the deceased, and under the pillow and bolster, and that she did not see Cook's betting-book after the evening of Monday, the 19th, between seven and eight o'clock.

SECOND DAY—THURSDAY, MAY 15TH.

The witness, ELIZABETH MILLS, was cross-examined by Mr. Serjeant Shea. She deposed that Mr. Cook had been frequently staying at the "Talbot" for some months before his death, and that she had heard him complain of a sore throat, but did not observe any sores about his mouth, and never knew him take medicine before his last illness. She adhered to the statement that the deceased had told her that the pills Palmer had given him had made him ill, and she admitted that she had deposed to various circumstances which she had not sworn to at the inquest.

The LORD CHIEF JUSTICE interposed, and intimated his opinion that it would be a fairer course to read the witness's depositions.

The other judges concurred.

The ATTORNEY-GENERAL said, he should have interposed, but it was his intention to adduce evidence to show the manner in which the case was conducted by the coroner, and that he was expostulated with upon omitting to put proper questions, and also omitting to take down the answers that were given.

Mr. GARDNER, of Rugeley, gave evidence that he had frequently expostulated with the coroner at the inquest, on account of his omitting to put questions.

Mrs. ANN BARKES deposed that she was at Shrewsbury races in 1855, and that, on going into the "Raven," on Tuesday evening, Nov. 18th, to see Palmer, she found him in a passage at the top of the stairs, standing by a small table. He had a tumbler-glass in his hand, in which there appeared to be a small quantity of water. I did not see him put anything into it. There was a light between him and me, and he held it up to the light. He stood at the table a minute or two longer with the glass in his hand, holding it up to the light once or twice, and now and then shaking it. The door of a sitting-room was partially open, and he went into it, taking the glass with him. Palmer afterwards brought her some brandy-and-water, from which she experienced no ill effects. The witness testified that many persons were ill at Shrewsbury that day. "There was a wonder as to what caused their illness, and something was said about the water being poisoned. People were affected by sickness and purging."

LAVINIA BARNES, the waitress at the "Talbot Arms," Rugeley, in November last, deposed to the illness of Cook in that house. Her statement agreed with the evidence of Elizabeth Mills.

ANN ROWLEY and CHARLES HORLEY attested to taking broth from Palmer's house to Cook on Saturday, Nov. 17th. The evidence of Miss SARAH BOND, housekeeper at the "Talbot" in November, adds few particulars.

WILLIAM HENRY JONES, examined by the Attorney-General.—I am a surgeon, living at Lutterworth. I have been in practice fifteen years. I was acquainted with Cook, who from time to time resided at my house. He was twenty-eight years of age when he died, and unmarried. He was originally educated for the law, but of late years had devoted himself to agriculture and the turf. His health was generally good, but he was not very robust. He was a man of active habits. On the 19th of November (Monday), I received a letter from Palmer. [This letter, which was put in and read, was as follows:—"My dear Sir,—Mr. Cook was taken ill at Shrewsbury, and obliged to call in a medical man. Since then he has been confined to his bed here with a very severe bilious attack, combined with diarrhoea. I think it desirable for you to come to see him as soon as possible.—WILLIAM PALMER. Nov. 18th, 1855."]—On the next day I went to Rugeley. I arrived at the "Talbot Arms" about half-past three o'clock in the afternoon, and immediately went up to Cook's room. I examined Cook in Palmer's presence. He had a natural pulse. I looked at his tongue, which was clean. I said it was hardly the tongue of a bilious diarrhoea attack. In the course of the afternoon I visited him several times. He changed for the better. There was no diarrhoea. Mr. Bamford came in the evening about seven

o'clock. We were talking about what he was to have; and Cook objected to the pills of the previous night. Cook said the pills made him ill. We three (Palmer, Bamford, and myself) went out upon the landing. Palmer proposed that Mr. Bamford should make up some morphine pills as before, at the same time requesting me not to mention to Cook what they contained, as he objected to the morphine so much. Mr. Bamford agreed to this, and he went away. I went back to Cook's room, and Palmer went with me. There was no more vomiting, nor any diarrhoea; but there was a natural motion of the bowels. I observed no bilious symptoms about Cook, nor did he appear to have recently suffered from a bilious attack. Palmer and I went to his (Palmer's) house about eight o'clock. I remained there about half an hour, and then returned to Cook. I next saw Palmer in Cook's room at nearly eleven o'clock. He had brought with him a box of pills. He opened the paper, on which the direction was written. He called my attention to the paper, saying, "What an excellent handwriting for an old man!" Palmer proposed to Cook that he should take the pills. Cook protested very much against it, because they had made him so ill on the previous night. Palmer repeated the request several times, and at last Cook complied with it, and took the pills. The moment he took them he vomited into the utensil. Palmer and myself (at Palmer's request) searched in it for the pills, to see whether they returned. We found nothing but toast-and-water. The vomiting could not have been caused by the contents of the pills, nor by the act of swallowing. After vomiting Cook laid down and appeared quiet. Before Palmer came Cook had got up and sat in a chair. His spirits were very good; he was laughing and joking. After he had taken the pills I went down-stairs to my supper, and returned to his room at nearly twelve o'clock. His room was double-bedded, and it had been arranged that I should sleep in it that night. I talked to Cook for a few minutes, and then went to bed. When I last talked to him he was rather sleepy, but quite as well as he had been during the evening. There was nothing about him to excite any apprehensions. I had been in bed about ten minutes, and had not got to sleep, when he suddenly started up in bed, and called out, "Doctor, get up, I am going to be ill! Ring the bell, and send for Palmer." I rang the bell. The chambermaid came, and Cook called out to her, "Fetch Mr. Palmer." He asked me to give him something. I declined, and said, "Palmer will be here directly." Cook was then sitting up in bed. The room was rather dark, and I did not observe anything particular in his countenance. He asked me to rub the back of his neck. I did so. I supported him with my arm. There was a stiffness about the muscles of his neck. Palmer came very soon (two or three minutes at the utmost) after the chambermaid went for him. He said, "I never dressed so quickly in my life." He gave Cook two pills, which he told me were ammonia pills. Cook swallowed them. Directly he did so, he uttered loud screams, threw himself back in the bed, and was dreadfully convulsed. That could not have been the result of the action of the pills last taken. Cook said, "Raise me up! I shall be suffocated." That was at the commencement of the convulsions, which lasted five or ten minutes. The convulsions affected every muscle of the body, and were accompanied by stiffening of the limbs. I endeavoured to raise Cook with the assistance of Palmer, but found it quite impossible, owing to the rigidity of the limbs. When Cook found we could not raise him up he asked me to turn him over. He was then quite sensible. I turned him on his side. I listened to the action of his heart. I found that it gradually weakened, and asked Palmer to fetch some spirits of ammonia, to be used as a stimulant. Palmer went to his house and fetched the bottle. He was away a very short time. When he returned, the pulsations of the heart were gradually ceasing, and life was almost extinct. Cook died very quietly a very short time afterwards. From the time he called to me to that of his death there elapsed about ten minutes or a quar-

ter of an hour. He died of tetanus, which is a spasmodic affection of the muscles of the whole body. It causes death by stopping the action of the heart. The sense of suffocation is caused by the contraction of the respiratory muscles. The room was so dark that I could not observe what was the outward appearance of Cook's body after death. When he threw himself back in bed, he clenched his hands, and they remained clenched after death. When I was rubbing his neck, his head and neck were unnaturally bent back by the spasmodic action of the muscles. After death his body was so twisted or bowed that if I had placed it upon the back it would have rested upon the head and the feet.

By Lord Campbell.—When did you first observe that twisting or bowing?—When Cook threw himself back in bed.

The succeeding evidence of Mr. Jones chiefly related to Palmer's desiring him to take possession of the watch and money belonging to the deceased, the failure to find Cook's betting-book, the assertion made by Palmer that he was liable for Mr. Cook to the extent of £3000 or £4000, and Palmer's offer to Mr. Stevens to bury Mr. Cook himself.

In his cross-examination by Mr. Serjeant Shee, the witness stated that Cook had suffered from an affection of the throat, for which caustic had been applied, but that he had ceased to complain of it for about two months; also that Cook had had venereal disease about twelve months ago, and expressed apprehensions of secondary symptoms. He added.—On Tuesday, November 20th, when I saw Cook at Rugeley, the latter objected to take morphia pills, because they had made him ill the night before. He did not say that Dr. Savage had forbidden him to take the morphia, but he said that he had been directed not to take mercury or opium. The effect of morphia would be to soothe and to cause slight constipation. When I saw him, and he roused up a little, he said, "Palmer, give me the remedy you gave me last night." I rubbed the deceased's neck for about five minutes. He died very quietly. I had seen cases of tetanus before. I think I mentioned tetanus at the inquest. I am sure, if you refer to my depositions, you will find that I mentioned tetanus and convulsions both. (The depositions were referred to, and there was no mention of tetanus in them.) Witness continued, however, "I am sure that I mentioned tetanus."

The ATTORNEY-GENERAL.—I must set this right. I have here the original deposition, and I find that the matter stands thus: "There were strong symptoms of"—then there is the word "compression" struck out; and then there is the word "tetanus" also struck out—it is evident that the clerk did not know the meaning of what he was writing—and then the words "violent convulsions" are added; so that the sentence stands, "There were strong symptoms of violent convulsions."

By Mr. Serjeant Shee.—I also said before the coroner that I could not tell the cause of death, and that I imagined at the time that it was from over-excitement. I do not recollect that I ever said that deceased died of epilepsy. Mr. Bamford said that he died in an apoplectic fit, and I said that I thought he did not. I said that it was more like an epileptic than an apoplectic fit.

Re-examined by the Attorney-General.—I have only seen one case of tetanus, and that case resulted from a wound. The patient in that case lasted three days before death ensued. I am satisfied that the death of Mr. Cook did not arise from epilepsy. In epilepsy consciousness is lost, but there is no rigidity or convulsive spasm of the muscles. The symptoms are quite different. I am equally certain that death was not the result of apoplexy.

Lavinia Barnes and Elizabeth Mills were then successively recalled, and deposed that on the morning of Monday, the 19th, Mr. Cook had told them that he had been ill on the Sunday night also, and had rung (or would have rung) the bell for some one to come to him, but he thought they had all gone to bed. It does not appear that Cook stated in what way he had then suffered.

Dr. HENRY SAVAGE, physician, of 7, Gloucester-place, examined by the Attorney-General.—I knew John Parsons Cook. He had been in the habit of consulting me professionally during the last four years. He was a man not of robust constitution; but his general health was good. He came to me in May, 1855, but I saw him about November of the year before, and early in the spring of 1855. In the spring of 1855, the old affair, indigestion, was one cause of his visiting me, and he had some spots upon his body, about which he was uneasy. He had also two shallow ulcers on his tongue, which corresponded to two bad teeth. He said that he had been under a mild mercurial course, and he imagined that those spots were syphilitic. I thought they were not, and I recommended the discontinuance of mercury. I gave him quinine as a tonic, and an aperient composed of cream of tartar, magnesia, and sulphur. I never at any time gave him antimony. Under the treatment which I prescribed, the sores gradually disappeared, and they were quite well by the end of May. I saw him, however, frequently in June, as he still felt some little anxiety about the accuracy of my opinion. If any little spot made its appearance, he came to me, and I also was anxious on the subject, as my opinion differed from that of another medical man in London. Every time he came to me I examined him carefully. There were no indications of a syphilitic character about the sores, and there was no ulceration of the throat, but one of the tonsils was slightly enlarged and tender. I saw him last alive, and carefully examined him, either on the 3rd or 5th of November. There was in my judgment no venereal taint about him at the time.

Cross-examined by Mr. Serjeant Shee.—I do not think that the deceased was fond of taking mercury before I advised him against it; but he was timid on the subject of his throat, and was apt to take the advice of any one. I don't think that he would take quack medicines. I don't think he was so foolish as that.

CHARLES NEWTON, called and examined by Mr. James, Q.C.—I am assistant to Mr. Salt, a surgeon at Rugeley. I know the prisoner, William Palmer. I remember Monday, the 19th of November. I saw Palmer that evening at Mr. Salt's surgery, about nine o'clock. I was alone when he came there. He asked me for three grains of strychnine, and I weighed it accurately, and gave it to him, enclosed in a piece of paper. I knew him to be a medical man, and gave it to him—made no charge for it. The whole transaction did not occupy more than two or three minutes. I again saw Palmer on the following day, between eleven and twelve o'clock. He was then at the shop of Mr. Hawkins, a druggist. He asked me how I was, and put his hand upon my shoulder and said he wished to speak with me. Accordingly I went out into the street with him, and he then asked me when Mr. Edwin Salt was going to his farm. While we were talking, a Mr. Brassington came up and spoke to me, and during our conversation Palmer went into Hawkins's shop again. Palmer came out of the shop a second time; he went past me in the direction of his own house. I then went into Hawkins's shop, where I saw Roberts, Mr. Hawkins's apprentice, and I had some conversation with him about Palmer. I knew a man named Thirlby, who had been an assistant and a partner of Palmer. Palmer usually dealt with Thirlby for his drugs, in fact, Thirlby dispensed Palmer's medicine. On Sunday, the 25th of November, about seven o'clock in the evening, I was sent for and went to Palmer's house. I found Palmer, when I got there, in his kitchen, sitting by his fire, reading. He asked me to have some brandy-and-water. No one else was present. He asked me what was the dose of strychnine to give to kill a dog? I told him a grain. He asked me what would be the appearance of the stomach after death? I told him that there would be no inflammation, and that I did not think it could be found. Upon that he snapped his finger and thumb in a quiet way, and exclaimed, as if communing with himself, "That's all right." It might have been a week or two or three days after I gave Palmer the strychnine that I first men-

tioned the occurrence to any one. I did not mention the circumstance of my having given the strychnine to Palmer, because Mr. Salt, my employer, and Palmer were not friends, and I thought it would displease Mr. Salt if he knew that I had let Palmer have anything.

Mr. Serjeant SKEE.—Have you not given another reason for not mentioning the occurrence about the three grains of strychnine before—that reason being that you were afraid that you could be indicted for perjury?—No, I did not give that as a reason, but I stated to a gentleman that a young man at Wolverhampton had been threatened to be indicted for perjury by George Palmer, because he had said, at the inquest upon Walter Palmer, that he had sold the prisoner prussic acid, and he had not entered it in the book and could not prove it. I stated at the same time that George Palmer said he could be transported for it. I did not enter the gift of the three grains of strychnine from Mr. Salt's surgery in a book. The inquest upon Walter Palmer did not take place till five or six weeks after the inquest upon Cook.

THIRD DAY—FRIDAY, MAY 16th.

CHARLES JOSEPH ROBERTS, examined by Mr. E. James. In November last I was apprentice to Mr. Hawkins, a druggist, at Rugeley. I knew Palmer. On Tuesday, Nov. 20th, between eleven and twelve in the day, he came into Mr. Hawkins's shop. He first asked for two drachms of prussic acid, for which he had brought a bottle. I was putting it up, when Newton, the assistant of Salt, came in. Palmer told him he wanted to speak to him, and they went out of the shop together. I then saw Brassington, the cooper, take Newton away from Palmer, and enter into conversation with him. Palmer then came back into the shop, and asked me for six grains of strychnine, and two drachms of Battley's solution of opium (commonly called "Battley's sedative"). I had put up the prussic acid, which was lying upon the counter. While I was preparing the things, he stood at the shop door, with his back to me, looking into the street, till they were ready, when I delivered them to him: the prussic acid in the bottle he had brought, the strychnine in a paper, and the opium in a bottle. He paid me for them, and took them away. No one else was in the shop from the time when Palmer and Newton went out till I delivered the things to him. When Palmer had left, Newton came in, and we had some conversation. I had at that time been six years in Mr. Hawkins's employment. Palmer had not bought any drugs at the shop for about two years. I did not make any entries of any of these things in the books. When articles are paid for across the counter I am not in the habit of making entries of them in the books.

The ATTORNEY-GENERAL said that Mr. Bamford was seriously ill, and unable to attend, but his depositions would be read.

Mr. WM. STEVENS, examined by the Attorney-General.—I have been a merchant in the city, but am now out of business. Was stepfather to the deceased Mr. Cook. I married his father's widow fifteen (or eighteen) years ago, and have known him intimately ever since. I was made executor to his grandfather's will. I was always on friendly terms with him, and constantly had the care of him. He had a property worth altogether about £12,000. He was articled to a solicitor at Worthing, in Sussex, but he did not follow the profession. I first heard of his death on the evening of Wednesday, Nov. 21st. Mr. Jones, of Lutterworth, called at my house and informed me of it. The next day I went down to Lutterworth with Mr. Jones, for the purpose of searching for the will and papers. The day after I went to Rugeley. I asked to see the body when I got to the inn. I met Palmer in the passage. He followed us upstairs to see the body, and removed the sheet from it to rather below the waist. I was much struck with its appearance. I first noticed the tightness of the muscles

across the face. There did not appear to me to be any emaciation or disease. We all went down stairs to one of the sitting rooms. I said to Palmer, "I hear from Mr. Jones that you know something of my son's affairs. Can you tell me anything about them?" He replied, "Yes; there are £4000 worth of bills out of his, and I am sorry to say my name is to them; but I have got a paper drawn up by a lawyer, and signed by him, to show that I never had any money from them." I expressed great surprise at this, and said, "I fear there won't be 4000 shillings to pay you." "But," I asked, "had he no horses—no property?" Palmer replied, "Yes, he has some horses, but they are mortgaged." I said, "Has he no sporting bets, nor anything of that sort?" He mentioned one debt of £300. Mr. Stevens further stated that Palmer offered to bury Cook himself; but this offer the witness, as his executor, declined, and said, he (Stevens) would bury him as soon as possible. Palmer said, "Oh! that's of no consequence, but the body ought to be fastened up at once." He repeated that observation—"So long as the body is fastened up, it is of no consequence." Mr. Stevens asked Palmer for the name of some respectable undertaker at Rugeley, that he might at once order a coffin and give directions. Palmer said, "I have been and done that. I have ordered a shell and a strong oak coffin." Mr. Stevens expressed surprise. After dinner, of which Palmer partook, Mr. Stevens ascertained that Cook's betting-book was nowhere to be found, on which some altercation ensued, and Mr. Stevens ordered that everything in the room occupied by the deceased should be locked up. Before leaving, Mr. Stevens went to view the corpse again. He stated that—The body was in the shell, uncovered. I knelt down by the side of the shell, and, taking the right hand of the corpse, I found it clenched. I looked across the body, and saw the left hand was clenched in the same manner. Mr. Stevens returned to London, and consulted his solicitor, who gave him a letter to Mr. Gardner, of Rugeley, for which place he started by train on Saturday, Nov. 24th. At the Euston-square station he met Palmer, who was also going to Rugeley, and on the way he mentioned to Palmer his desire that there should be a post-mortem examination. He asked Palmer on the next day (Sunday, 25th) if he had professionally attended the deceased. The reply was, "Oh, dear no." Mr. Stevens then announced his determination to have a post-mortem examination of the body. In his cross-examination, he stated that Cook had a sore throat in January or February, 1855; but it was not habitually sore, and that he had seen no ulcers on the face of Cook.

MARY KEELEY, examined by Mr. Welsby.—I am a widow, living at Rugeley. On the morning of Wednesday, the 21st of November last, I was sent for to lay out Cook's body. My sister-in-law went with me. The body was very stiff, indeed. I have laid out many corpses. I never saw one so stiff before. We had difficulty in straightening the arms. We could not keep them straight down to the body. I passed a piece of tape under the back, and tied it round the wrists to fasten the arms down. The right foot turned on one side, outwards. We were obliged to tie both the feet together. The eyes were open. We were a considerable time before we could close them, because the eyelids were very stiff. The hands were closed, and were very stiff. The fingers were very stiff, and I had difficulty in getting off the rings. I got them off; and when I had done so, the hand closed again.

Cross-examined by Mr. Grove.—It is not usual to tie the hands of a corpse. I have never before used tape to tie the arms. The jaw is generally tied up shortly after death.

Re-examined by the Attorney-General.—I cannot say how many bodies I have laid out, but I have laid out a great many of all ages. I never knew of the arms being tied before this instance. I have put penny pieces on the eyes. In those cases the lids were stiff, but not so stiff as in this instance.

JOHN THOMAS HARLAND, examined by Mr. Bodkin.—I am a physician, residing at Stafford. On the 26th of No.

ember last, I went from Stafford to Rugeley to be present at a post-mortem examination. I called at the house of Mr. Bamford, surgeon. As I went there Palmer joined me in the street. He said, "I am glad that you are come to make a post-mortem examination. Some one might have been sent whom I did not know." I said, "What is this case? I hear there is a suspicion of poisoning." He said, "Oh, no; I think not. He had an epileptic fit on Monday and Tuesday last, and you will find old disease in the heart, and in the head." He (Palmer) said there was a very queer old man who seemed to suspect him of something, but he did not know what he meant or what he wanted. Mr. Bamford and I then went to the house of Mr. Frere, who is a surgeon at Rugeley. Palmer did not go with us. Thence we went to the "Talbot Arms," where the post-mortem examination was proceeded with. Mr. Devonshire operated, and Mr. Newton assisted him. There were in the room besides, Mr. Bamford, Palmer, myself, and several other persons. I stood near Mr. Devonshire. The body was very stiff. It was much stiffer than bodies usually are five or six days after death. The muscles were very highly developed. By that I mean that they were strongly contracted and thrown out. I examined the hands. They were stiff, and were freely closed. The abdominal viscera were first examined.

At the suggestion of Lord Campbell, the witness read a report which he had prepared on the day on which this post-mortem examination took place, November 26th, 1855, and transmitted to Mr. Stevens, the stepfather of the deceased. This report described the state of the various internal organs as being perfectly healthy and natural. The material statements were all repeated in the subsequent examination of the witness. After reading the report,

The witness continued.—The abdominal viscera were in a perfectly healthy state. They were taken out of the body. We examined the liver. It was healthy. The lungs were healthy, but contained a good deal of blood. Not more than would be accounted for by gravitation after death. We examined the head. The brain was quite healthy. There was no extravasation of blood, and no serum. There was nothing which, in my judgment, could cause pressure. The heart was contracted, and contained no blood. That was the result not of disease, but of spasmodic action. At the larger end of the stomach there were numerous small yellowish-white spots, about the size of mustard-seeds. They would not at all account for death. I doubt whether they would have any effect upon the health. I think they were mucous follicles. The kidneys were full of blood, which had gravitated there. They had no appearance of disease. The blood was in a fluid state. That is not usual. It is found so in some cases of sudden death, which are of rare occurrence. The lower part of the spinal cord was not very closely examined. We examined the upper part of that cord. It presented a perfectly natural appearance. On a subsequent day, I think the 25th of January, it was thought right to exhume the body, that the spinal cord might be more carefully examined. I was present at that examination. The lower part of the spinal cord was then minutely examined. A report was made of that examination.

This report was put in, and was read by the witness. It described minutely the appearance and condition of the spinal cord and its envelopes, and concluded with this statement:—"There is nothing in the condition of the spinal cord or its envelopes to account for death; nothing but the most normal and healthy state, allowance being made for the lapse of time since the death of the deceased."

Examination resumed.—I am still of opinion that there was nothing in the appearance of the spine to account for the death of the deceased, and nothing of an unusual kind which might not be referred to changes after death. When the stomach and intestines were removed from the body on the occasion of the first examination, they were separately emptied into a jar, and were afterward placed in it. Mr. Devonshire and Mr. Newton removed

them from the body. They were the only two who operated. At that time Palmer was standing on the right of Mr. Newton. While Mr. Devonshire was opening the stomach a push was given by Palmer which sent Mr. Newton against Mr. Devonshire, and shook some of the contents of the stomach into the body. I thought a joke was passing amongst them, and said, "Don't do that."

By Lord Campbell.—Might not Palmer have been impelled by some one outside him?—There was no one who could have impelled him.

What did you observe Palmer do?—I saw Mr. Newton and Mr. Devonshire pushed together, and Palmer was over them. He was smiling at the time.

Examination continued.—After this interruption the opening of the stomach was pursued. The stomach contained about three ounces of a brownish fluid. There was nothing particular in that. Palmer was looking on, and said, "They went hang us yet." He said that to Mr. Bamford in a loud whisper. That remark was made upon his own observation of the stomach. The stomach, after being emptied, was put into the jar. The intestines were then examined, but nothing particular was found in them; they were contracted and very small. The viscera, with their contents, as taken from the body, were placed in the jar, which was then covered over with two bladders, which were tied and sealed. I tied and sealed them. After I had done so, I placed the jar upon the table by the body. Palmer was then moving about the room. In a few minutes I missed the jar from where I had placed it. During that time my attention had been withdrawn by the examination. On missing the jar I called out, "Where is the jar?" and Palmer, from the other end of the room, said, "It is here; I thought it would be more convenient for you to take away." There was a door at the end of the room where he was. He was within a yard or two of that door, and about twenty-four feet from the table on which the body was lying. [Before making this last statement the witness referred to a plan of the room which was put in by the Attorney-General.] The door near which Palmer was standing was not the one by which he had entered the room. I called to Palmer, "Will you bring it here?" I went from the table and met Palmer half way, coming with the jar. The jar had since I last saw it been cut through both bladders. The cut was hardly an inch long. It had been done with a sharp instrument. I examined the cut. The edges were quite clean. No part of the contents of the jar could have passed through it. Finding this cut, I said, "Here is a cut; who has done this?" Palmer and Mr. Devonshire and Mr. Newton all said that they had not done it, and nothing more was said about it. When I was about to remove the jar from the room, the prisoner asked me what I was going to do with it. I said I should take it to Mr. Frere's. He said, "I had rather you would take it to Stafford than take it there." I made no answer that I remember. I took it to Mr. Frere's house. After doing so I returned to the "Talbot Arms." I left the jar in Mr. Frere's hall, tied and sealed. Immediately upon finding the slit in the cover, I cut the strings and altered the bladders, so that the slits were not over the top of the jar. I resealed them. After going to Mr. Frere's I went to the "Talbot Arms." I went into the yard to order my carriage, and while I was waiting for it the prisoner came across to me. He asked me what I had done with the jar. I told him that I had left it at Mr. Frere's. He inquired what would be done with it, and I said that it would go either to Birmingham or London that night for examination. I do not recollect that he made any reply. When I re-covered the jar, I tied each cover separately, and sealed it with my own seal. During the first post-mortem examination there were several Rugeley persons present, but I believe no one on behalf of the prisoner. At the second examination there was some one there on behalf of Palmer.

Cross-examined by Mr. Serjeant Shee.—In the course of the post-mortem examination, Palmer said, "They

went hang us yet." I am not sure whether that observation was addressed to Mr. Bamford, or whether he prefaced it by the word "Doctor." I think that he first said it to Mr. Bamford in a loud whisper, and afterwards repeated it to several persons. I had said to him that I had heard that there was a suspicion of poisoning. I made notes in pencil at the time of the post-mortem, and I wrote a more formal report from those notes as soon as I got home. The original pencil notes are destroyed. I sent the fair copy to Mr. Stevens, Cook's father-in-law, the same evening. They were not produced before the coroner. At the base of the tongue of the deceased I observed some enlarged mucous follicles; they were not pustules containing matter, but enlarged mucous follicles of long standing. There were a good many of them, but I do not suppose that they would occasion much inconvenience. They might cause some degree of pain, but I think that it would be slight. I do not believe that they were enlarged glands. I should not say that deceased's lungs were diseased, although they were not in their normal state. The lungs were full of blood, and the heart empty. I had no lens at the post-mortem, but I made an examination which was satisfactory to me without one. The brain was carefully taken out; the membranes and external parts were first examined, and thin slices of about a quarter of an inch in thickness were taken off and subjected to separate examination. I think that by that means we should have discovered disease if any had existed; and if there had been any indication of disease I should have examined it more carefully. I examined the spinal cord as far down as possible, and if there had been any appearance of disease I should have opened the canal. There was no appearance of disease however. We opened down to the first vertebra. If we had found a softening of the spinal cord I do not think that it would have been sufficient to have caused Mr. Cook's death; certainly not. A softening of the spinal cord would not produce tetanus—it might produce paralysis. I do not think, as a medical man investigating the cause of death, that it was necessary carefully to examine the spinal cord. I do not know who suggested that there should be an examination of the spinal cord two months after death. There were some appearances of decomposition when we examined the spinal cord, but I do not think that there was sufficient to interfere with our examination. I examined the body, to ascertain if there was any trace of venereal disease. I did find certain indications of that description, and the marks of an old excretion, which were cicatrized over.

Re-examined by the Attorney-General.—There were no indications of wounds or sores such as could by possibility produce tetanus. There was no disease of the lungs to account for death. The heart was healthy, and its emptiness I attribute to spasmodic action. The heart being empty, of course death ensued. The convulsive spasmodic action of the muscles of the body, which was deposed to yesterday by Mr. Jones, would, in my judgment, occasion the emptiness of the heart. There was nothing whatever in the brain to indicate the presence of any disease of any sort; but if there had been, I never heard or read of any disease of the brain ever producing tetanus. There was no relaxation of the spinal cord which would account for the symptoms accompanying Mr. Cook's death as they have been described. In fact, there was no relaxation of the spinal cord at all, and there is no disease of the spinal cord with which I am acquainted which would produce tetanus.

MR. CHARLES JAMES DEVONSHIRE, undergraduate of the University of London, and late assistant to Dr. Monckton, examined by Mr. Huddleston.—I made the first post-mortem examination on the body of Mr. Cook, in November last. The body was pale and stiff; the hands were clenched, and the mouth, was contorted. I opened the body. The liver was very healthy. The heart also seemed healthy, but it was perfectly empty. The lungs contained a considerable quantity of dark fluid blood. The blood was perfectly fluid. The brain was healthy throughout. I examined the medulla oblongata and

about a quarter or half an inch of the spinal cord. It was perfectly sound. I took out the stomach and opened it with a pair of scissors. I put the contents in a jar, which was taken to Mr. Frere's, the surgeon. I obtained the jar from Mr. Frere's on Monday in the same state as it was before, and I gave it Mr. Boycott, clerk to Mr. Gardner the attorney. I examined the body again on the 29th, and took out the liver, kidneys, spleen, and some blood. I put them in a stone jar, which I covered with wash-leather and brown paper, and sealed up. I delivered that jar also to Mr. Boycott. Palmer said at the examination that we should find syphilis upon the deceased. I therefore examined the parts carefully, and found no indications of the sort. I also took out the throat. The papillæ were slightly enlarged, but they were natural, and one of the tonsils was shrunk.

Cross-examined by Mr. Grove, Q.C.—Tetanic convulsions are considered to proceed from derangement of the spine and from complaints that affect the spine. These derangements are not always capable of being detected by examination. In examining the body of a person supposed to have died from tetanus, the spinal cord would be the first organ looked to. About half an inch of the spinal cord, exterior to the aperture of the cranium was examined on the first occasion. I was not present when the granules were discovered on the second examination. The learned counsel was proceeding to cross-examine this witness upon some minute points of a scientific nature, when

Baron ALDERSON, interposing, said,—When you have all the medical men in London here, you had better not examine an undergraduate of the University of London upon such points, I should think.

Dr. MONCKTON, examined by the Attorney-General.—I am a physician in practice, and reside at Rugeley. On the 28th of January I made a post-mortem examination of the spinal cord and marrow of the deceased, J. P. Cook. I found the muscles of the trunk in a state of laxity, which I should attribute to the decay of the body which had set in; but that laxity would not be at all inconsistent, in my opinion, with a great rigidity of those muscles at the time of death. The muscles of the arms and legs were in a state of rigidity, but they were not more rigid than usual in dead bodies. The muscles of the arms had partially flexed the fingers of the hand. The feet were turned inwards to a much greater extent than usual. I carefully examined the spinal cord. The body was then in such a condition as to enable me to make a satisfactory examination of it; and if prior to death there had been any disease of a normal character on the spinal cord and marrow, I should have had no difficulty in detecting it. There was no disease. I discovered certain granules upon it. It is difficult to account for their origin, but they are frequently found in persons of advanced age. I never knew them to occasion sudden death. I agree entirely in the evidence which has been given by Dr. Harland.

This witness was not cross-examined.

Mr. John Boycott, clerk to Messrs. Landor, Gardner, and Co., attorneys, of Rugeley, testified to having, on the 26th of November, delivered to Dr. Alfred Taylor, at Guy's Hospital, the jar beforementioned, and subsequently another jar received from Mr. Devonshire.

JAMES MYATT, examined by Mr. James.—He deposed that he was postboy at the "Talbot Arms," and that on the 25th Nov. he was ordered to take Mr. Stevens to the Stafford railway station in a fly. Before starting, Palmer asked me if I would upset them! He said he supposed I was going to take the jar. I said I believed I was. He said—"Do you think you could upset them?" I told him "No." He said, "If you could, there's a £10 note for you." I told him I could not. I then said, "I must go, the horses are in the fly ready for us to start." I do not recollect that he said anything more about the jar.

Cross-examined by Mr. Serjeant Shee.—Were not the words that Palmer used—"I wouldn't mind giving £10 to break Stevens's neck." I don't recollect the words "break his neck." Well, "upset him." Did he say, "I

wouldn't mind giving £10 to upset him!"—Yes; I believe those were the words. I can't say that he used any epithet applied to Stevens—he said it was a humbugging concern, altogether—or something of that. I do not know whether there was more than one jar.

CHESHIRE, the late postmaster of Rugeley, and Mr. WRATHERBY, were next examined, but their evidence relates to no circumstance of a medical nature; except that Cheshire admitted having "read" a letter sent through the post from Dr. Alfred Taylor to Mr. Gardner, to the effect that no strychnine, prussic acid, or opium were found in the contents of the stomach examined. This information Cheshire admitted having communicated to Palmer; on which the latter wrote the following letter to the coroner:—

"My dear Sir,—I am sorry to tell you that I am still confined to my bed. I don't think it was mentioned at the inquest yesterday that Cook was taken ill on Sunday and Monday night, in the same way as he was on the Tuesday, when he died. The chambermaid at the Crown Hotel (Masters's) can prove this. I also believe that a man by the name of Fisher is coming down to prove he received some money at Shrewsbury. Now, here he could only pay Smith £10 out of £41 he owed him. Had you not better call Smith to prove this? And, again, whatever Professor Taylor may say to-morrow, he wrote from London last Tuesday night to Gardner to say, 'We (and Dr. Rees) have this day finished our analysis, and find no traces of either strychnine, prussic acid, or opium.' What can beat this from a man like Taylor, if he says what he has already said, and Dr. Harland's evidence? Mind you, I know and saw it in black and white what Taylor said to Gardner: but this is strictly private and confidential, but it is true. As regards his betting-book, I know nothing of it, and it is of no good to anyone. I hope the verdict to-morrow will be that he died of natural causes, and thus end it.

"Ever yours,

"W. P."

ELLIS CRISP, inspector of police at Rugeley, proved that at the sale of the books of Palmer, he took possession of one, on a leaf of which was written, "Strychnine kills by causing tetanic fixing of the respiratory muscles."

Mrs. ELIZABETH HAWKES, the proprietress of a boarding house in Beaufort Buildings, proved that Palmer, whilst at her house on December 1st, 1855, purchased game and fish, and had them packed and forwarded to Mr. Ward, the coroner, at Stoke-upon-Trent; and Frederick Slack gave further evidence as to this transaction.

The evidence of Mr. GEORGE HERRING chiefly related to monetary proceedings on the part of Palmer, but in his cross-examination he stated—Several people were ill at Shrewsbury on the second day of the races. They suffered from a kind of diarrhoea. I was one of those so affected. I had my meals at the "Raven," where I put up, and also had my companions. They were not ill, but a gentleman who dined with us one day at the inn was. Palmer did not dine with me any day at the "Raven." I saw Cook several times on the racecourse. The ground was wet. I remonstrated with him on Thursday for standing on it. That was after he had been taken ill on Wednesday.

FOURTH DAY—SATURDAY, MAY 17TH.

GEORGE BATES, examined, proved having been directed by Palmer on the first day of the inquest on Cook, to procure game at Stafford, which he afterwards sent to the coroner. The rest of his evidence it is not necessary for us to allude to.

THOMAS BLIZARD CURLING, examined by the Attorney-General.—I am a member of the College of Surgeons, and Surgeon to the London Hospital. I have particularly turned my attention to the subject of tetanus, and have published a work upon that subject. Tetanus means a spasmodic affection of the voluntary muscles.

Of true tetanus there are only two descriptions—idiopathic and traumatic. There are other diseases in which we see contractions of the muscles, but we should not call them tetanus. Idiopathic tetanus is apparently self-generated; traumatic proceeds from a wound or sore. Idiopathic tetanus arises from exposure to damp or cold, or from the irritation of worms in the alimentary canal. It is not a disease of frequent occurrence. I have never seen a case of idiopathic tetanus, although I have been surgeon to the London Hospital for twenty-two years. Cases of traumatic tetanus are much more frequent. Speaking quite within compass, I have seen fifty such cases. I believe, one hundred would be nearer the mark. The disease first manifests itself by stiffness about the jaws and back of the neck. Rigidity of the muscles of the abdomen afterwards sets in. A dragging pain at the pit of the stomach is an almost constant attendant. In many instances the muscles of the back are extensively affected. These symptoms, though continuous, are liable to aggravations into paroxysms. As the disease goes on, these paroxysms become more frequent and more severe. When they occur the body is drawn backwards; in some instances, though less frequently, it is bent forward. A difficulty in swallowing is a very common symptom, and also a difficulty of breathing during the paroxysms. The disease may, if fatal, end in two ways. The patient may die somewhat suddenly from suffocation, owing to the closure of the opening of the windpipe; or, he may be worn out by the severe and painful spasms, the muscles may relax, and the patient gradually sink and die. The disease is generally fatal. The locking of the jaw is an almost constant symptom attending traumatic tetanus—I may say a constant symptom. It is not always strongly marked, but generally so. It is an early symptom. Another symptom is a peculiar expression of the countenance. I believe this is not peculiar to traumatic tetanus, but my observations are taken from such cases. There is a contraction of the eyelids, a raising of the angles of the mouth, and contraction of the brow. In traumatic tetanus the lower extremities are sometimes affected, and sometimes, but somewhat rarely, the upper ones. When the muscles of the extremities are affected, the time at which that occurs varies. If there is no wound in the arms or legs the extremities are generally not affected until late in the progress of the disease. I never knew or read of traumatic tetanus being produced by a sore throat or by a chancre. In my opinion a syphilitic sore would not produce tetanus. I know of no instance in which a syphilitic sore has led to tetanus. I think it a very unlikely cause. The time in which traumatic tetanus causes death varies from twenty-four hours to three or four days, or longer. The shortest period that ever came to my knowledge was eight to ten hours. The disease, when once commenced, is continuous.

Did you ever know of a case in which a man was attacked one day, had twenty-four hours' respite, and was then attacked the next day?—Never. I should say that such a case could not occur.

You have heard the account given by Mr. Jones of the death of the deceased,—were the symptoms there consistent with any forms of traumatic tetanus that have ever come under your observation?—No.

What distinguishes it from such cases?—The sudden onset of the disease. In all cases which have come under my notice the disease was preceded by the milder symptoms of tetanus, gradually proceeding to the complete development.

Were the symptoms described by the woman Mills as being presented on the Monday night those of tetanus? No; not of the tetanus of disease.

Assuming tetanus to be synonymous with convulsive or spasmodic action of the muscles, was there in that sense tetanus on the Monday night?—No doubt there was spasmodic action of the muscles.

There was not, in your opinion, either idiopathic or traumatic tetanus?—No.

Why are you of that opinion?—The sudden onset of the spasms, and their rapid subsidence, are consistent with neither of the two forms of tetanus.

Is there not what is called hysteric tetanus?—Yea. It is rather hysteria combined with spasms, but it is sometimes called hysteric tetanus. I have known no instance of its proving fatal, or of it occurring to a man. Some poisons will produce tetanus. Nux vomica, acting through its poisons, strychnia and brucia, poisons of a cognate character, produces that effect. I never saw a case of human life destroyed by strychnine.

Cross-examined by Mr. Serjeant Shee.—Irritation of the spinal cord, or of the nerves proceeding to it, might produce tetanus.

Do you agree with the opinion of Dr. Webster, in his Lectures on the Principles and Practice of Physic, that in four cases out of five the disease begins with lock-jaw?—I do.

Do you agree with Dr. Watson, that all the symptoms of tetanic convulsions may arise from causes so slight as these: the sticking of a fish-bone in the fauces, the air caused by a musket-shot, the stroke of a whip-lash under the eye, leaving the skin unbroken, the cutting of a corn, the biting of the finger by a favourite sparrow, the blow of a stick on the neck, the insertion of a seton, the extraction of a tooth, the injection of a hydrocele, and the operation of cutting?—Excepting the percussion of the air from a musket-ball, I think all these causes may produce the symptoms referred to.

Do you remember reading of a case which occurred at Edinburgh, in which a negro servant lacerated his thumb by the fracture of a china dish, and was instantly, while the guests were at dinner, seized with tetanus?

The ATTORNEY-GENERAL, interposing before the witness replied.—I have taken some pains to ascertain what that case is, and where it is got from.

Cross-examination continued.—Could traumatic tetanus occur within so short a time as a quarter of an hour after the reception of an injury?—I know of no well-authenticated instance of the kind.

Did you inquire into this case which is mentioned in your own treatise: "A negro, having scratched his thumb with a piece of broken china, was seized with tetanus, and in a quarter of an hour after this he was dead"?—I referred to authority as far as I could, but I did not find any reference to it except in Cyclopædias. When I wrote that book, I was a young man twenty-two years of age. I have maturer judgment and greater experience now.

You say that no case of idiopathic tetanus has come under your notice?—None.

I dare say you will tell us that such cases are not so likely to come to the hospital as those of a wound ending in traumatic tetanus; they would be more likely, in the first instance, to come under the notice of a physician than that of a surgeon?—Certainly.

By Lord CAMPBELL.—I have read of cases of idiopathic tetanus in this country.

Mr. Serjeant SHEE.—We shall be able to show that there have been such cases.

Cross-examination continued.—Do you not know that very lately there was in the London Hospital a case in which tetanus came on so rapidly and so unaccountably that it was referred to strychnine, and it was thought necessary to examine the stomach of the patient?—I know that such an opinion was entertained before the history of the case was investigated. I have heard that no strychnine was found. In that case old syphilitic sores were discovered.

By Lord CAMPBELL.—I did not see the patient, who was under the care of the house-surgeons, who are now in court.

Cross-examination continued.—Might not the irritation of a syphilitic sore, by wet, cold, drink, mercury, and mental excitement, lead to tetanic symptoms?—I do not think that that is very likely. The irritation which is likely to produce tetanus is the sore being exposed to friction, to which syphilitic sores in the throat are not exposed. I should class tetanus arising from the irritation of a sore as "traumatic." Cases very rarely occur which it is difficult to class as either "traumatic" or "idiopathic." I should class tetanus arising from irri-

tation of the intestines as "idiopathic." The character of the spasms of epilepsy is not tetanic.

Not of the spasms; but are not the contractions of epilepsy sometimes continuous, so that the body may be twisted into various forms, and remain rigidly in them?—Not continuously.

For five or ten minutes together?—I think not.

Does it not frequently happen that general convulsions, no cause or trace of which, in the form of disease or lesion, is to be found in the body after death, occur in the most violent and spastic way, so as to exhibit appearances of tetanic convulsions?—No instance of the kind has come under my observation.

Do you agree with this opinion of Dr. Copeland, expressed in his "Dictionary of Practical Medicine," under the head "General Convulsions:" "The abnormal contraction of the muscles is in some cases of the most violent and spastic nature, and frequently of some continuance, the relaxations being of brief duration or scarcely observable, and in others nearly or altogether approaching the tetanic?"—I would rather speak from my own observation. I have not observed anything of the kind.

Does it not happen that a patient dies of convulsions, spastic in the sense of their being tumultuous and alternating, and chronic in the sense of exhibiting continuous rigidity, yet after death no disease is found?—It does not often happen to adults.

Does it sometimes?—I do not know, nor have I read of such a case. I have no hesitation in saying that people may die from tetanus and other diseases without the appearance of morbid symptoms after death.

Are not convulsions, not strictly speaking tetanic, constantly preserved by retching, distension of the stomach, flatulence of the stomach and bowels, and other dyspeptic symptoms?—Such cases do not come under my observation as an hospital surgeon. I think it is very probable that general convulsions are accompanied by yelling. I don't know that they frequently terminate fatally, and that the proximate cause of death is spasm of the respiratory muscles, inducing asphyxia.

Re-examined by the Attorney-General.—These convulsions are easily distinguished from tetanus, because in them there is an entire loss of consciousness.

Is it one of the characteristic features of tetanus that the consciousness is not affected?—It is.

Dr. Todd, examined by the Attorney-General.—I am physician at King's College Hospital, and have held that office about twenty years. I have also lectured on Physiology and Anatomy, on Tetanus and the Diseases of the Nervous System, and have published my lectures. I agree with the last witness in his distinction between idiopathic and traumatic tetanus. I have seen two cases of what appeared to me to be idiopathic tetanus, but such cases are rare in this country.

By Lord Campbell.—I define idiopathic tetanus to be that form of the disease which is produced without any external wound, apparently from internal causes—from a constitutional cause.

Examination resumed.—In my opinion the term tetanus ought not to be applied to disease produced by poisons, but I should call the symptoms tetanic in order to distinguish the character of the convulsions. I have observed cases of traumatic tetanus. Except that in all such cases there is some lesion, the symptoms are precisely the same as those of idiopathic tetanus. The disease begins with stiffness about the jaw. The symptoms gradually develop themselves and extend to the muscles of the trunk.

When the disease has begun, is there any intermission?—There are remissions, but they are not complete; only diminutions of the severity of the symptoms, not a total subsidence. The patient does not express himself as completely well, quite comfortable. I speak from my own experience.

What is the usual period that elapses between the commencement and termination of the disease?—The cases may be divided into two classes. Acute cases will terminate in three or four days, chronic cases will go on

as long as from nineteen to twenty-two or twenty-three days, and perhaps longer. I do not think that I have known a case in which death occurred within four days. Cases are reported in which it occurred in a shorter period. In tetanus the extremities are affected, but not so much as the trunk. Their affection is a late symptom. The locking of the jaw is an early one. Sometimes the convulsions of epilepsy assume somewhat of a tetanic character, but they are essentially distinct from tetanus. In epilepsy the patient always loses consciousness. Apoplexy never produces tetanic convulsions. Perhaps I may be allowed to say, that when there is effusion of blood upon the brain, and a portion of the brain is involved, the muscles may be thrown into short tetanic convulsions. In such cases the consciousness would be destroyed. Having heard described the symptoms attending the death of the deceased, and the post-mortem examination, I am of opinion that in this case there was neither apoplexy nor epilepsy.

The ATTORNEY-GENERAL said that, as Mr. Bamford was so unwell that it was doubtful whether he would be able to appear as a witness, he proposed to put in his deposition, in order to found upon it a question to the witness now under examination.

Dr. TODD and Dr. TWEDDE deposed that they had seen Mr. Bamford on the previous day, and that he was then suffering from a severe attack of English cholera. He was too unwell to be able to attend to give evidence.

The COURT ruled that the depositions taken before the coroner might be read; and they were read accordingly by the Clerk of the Arraignment. They were to the following effect:—

"I attended the late Mr. Cook at the request of Mr. William Palmer. I first saw him about three o'clock on Saturday, the 17th of November, when he was suffering from violent vomiting, the stomach being in that irritable state that it would not contain a teaspoonful of milk. There was perfect moisture of the skin, and he was quite sensible. I prescribed medicine for him, and Mr. Palmer went up to my house and waited until I made it up, and then took it away. I prescribed a saline medicine, to be taken in an effervescent state. Between seven and eight o'clock in the evening Mr. Palmer again requested me to visit Mr. Cook. The sickness still continued, everything being ejected which he took into his stomach. I gave him two small pills as a slight opiate. Mr. Palmer took the pills from my house. I did not accompany him, nor do I know what became of the pills. On the following morning (Sunday) Mr. Palmer again called, and asked me to accompany him. Mr. Cook's sickness still continued. I remained about ten minutes. Everything he took that morning was ejected from his stomach. Everything he threw up was as clear as water, except some coffee which he had taken. Mr. Palmer had administered some pills before I saw Mr. Cook on Saturday, which had purged him several times. Between six and seven o'clock in the evening I again visited the deceased, accompanied by Mr. Palmer. The sickness still continued. I went on Monday morning, between eight and nine o'clock, and changed his medicine. I sent him a draught which relieved him from the sickness, and gave him ease. I did not see him again until Tuesday night, when Mr. Palmer called for me. I examined Mr. Cook in the presence of Mr. Jones and Mr. Palmer, and I observed a change in him. He was irritable and troubled in his mind. His pulse was firm, but tremulous, and between eighty and ninety. He threw himself down on the bed and turned his face away. He said he would have no more pills nor take any more medicine. After they had left the room Mr. Palmer asked me to make two more pills similar to those on the previous night, which I did, and he then asked me to write the directions on a slip of paper; and I gave the pills to Mr. Palmer. The effervescent mixture contained twenty grains of carbonate of potash, two drachms of compound tincture of cardamine, and two drachms of simple syrup, together with fifteen grains of tartaric acid for each powder. I never gave Mr. Cook a grain of antimony. I did not see the prepa-

rations after they were taken away by Mr. Palmer. Mr. Cook did not say he had taken the pills which he had prepared, but he expressed a wish on the Sunday and Monday nights to have the pills. His skin was moist, and there was not the least fever about him. When I saw the deceased on Monday he did not say that he had been ill on the Sunday night, but Mr. Palmer told me that he had been ill. I considered death to have been the result of congestion of the brain when the post-mortem examination was made, and I do not see any reason to alter that opinion. I have attended other patients for Mr. Palmer. I attended Mrs. Palmer some days before her decease; also two children and a gentleman from London, who was on a visit at Mr. Palmer's house, and who did not live many hours after I was called in. The whole of those patients died. Mr. Palmer first made an application to me for a certificate of Mr. Cook's death on the following Sunday morning, when I objected, saying, 'He is your patient. I cannot remember his reply; but he wished me to fill up the certificate, and I did so. We had no conversation at that time as to the cause of death—nothing more than the opinion I have expressed. Mr. Palmer said he was of the same opinion as myself with respect to the death of the deceased. I never knew apoplexy produce rigidity of the limbs. Drowsiness is a prelude to apoplexy. I attributed the sickness on the first two days to a disordered stomach. Mr. Cook never sent for me himself."

The examination of Dr. Todd by the Attorney-General was then proceeded with as follows:—Having heard the deposition of Mr. Bamford read, I do not believe that the deceased died from apoplexy or from epilepsy. I never knew tetanus arise either from syphilitic sores or from sore throat. There are poisons which will produce tetanic convulsions. The principal of those poisons are nux vomica and those which contain as their active ingredients strychnine and brucia. I have never seen human life destroyed by strychnine, but I have seen animals destroyed by it frequently. The poison is usually given in a largish dose in those cases, so as to put an end to the sufferings and destroy life as soon as possible. I should not like to give a human subject a quarter of a grain. I think that it is not unlikely that half a grain might destroy life; and I believe that a grain certainly would. I think that half a grain would kill a cat. The symptoms which would ensue upon the administration of strychnine when given in solution—and I believe that poisons of that nature act more rapidly in a state of solution than in any other form—would develop themselves in ten minutes after it was taken, if the dose were a large one; if not so large, they might be half an hour or an hour before they appeared. Those symptoms would be tetanic convulsions of the muscles—more especially those of the spine and neck; the head and back would be bent back, and the trunk would be bowed in a marked manner; the extremities, also, would be stiffened and jerked out. The stiffness, once set in, would never entirely disappear; but fresh paroxysms would set in, and the jerking rigidity would re-appear; and death would probably ensue in a quarter of an hour or so. The difference between tetanus produced by strychnine and other tetanus is very marked. In the former case the duration of the symptoms is very short, and, instead of being continuous in their development, they will subside if the dose has not been strong enough to produce death, and will be renewed in fresh paroxysms; whereas in other descriptions of tetanus the symptoms commence in a mild form and become stronger and more violent as the disease progresses. The difficulty experienced in breathing is common alike to tetanus properly so called and to tetanic convulsions occasioned by strychnine, arising from the pressure upon the respiratory muscles. I think it is remarkable that the deceased was able to swallow, and that there was no fixing of the jaw, which would have been the case with the tetanus proper, resulting either from a wound or from disease. From all the evidence I have heard, I think that the symptoms which presented themselves in the case of Mr. Cook arose from tetanus produced by strychnine.

Cross-examined by Mr. Grove, Q.C.—There are cases sloping into each other, as it were, of every grade and degree, from mild convulsions to violent tetanic spasms. I have published some lectures upon Diseases of the Brain, and I adhere to the opinion there expressed, that the state of a person suffering from tetanus is identical with that which strychnine is capable of producing. In a pathological point of view, an examination of the spinal cord shortly after death, in investigating supposed deaths from strychnine, is important. The signs of decomposition, however, could be easily distinguished from the evidences of disease which existed previously to death; but it would be difficult to distinguish in such a case whether mere softening resulted from decomposition or pre-existing disease. There is nothing in the post-mortem examination which leads me to think that the deceased died from tetanus proper. I think that granules upon the spinal cord, such as I have heard described, would not be likely to cause tetanus. I have not heard of cases treated by Mr. Traversa. In animals to which strychnine has been administered, I cannot say that I have observed what you call an intolerance of touch; but by touching them the spasms are apt to be excited. That sensibility to touch continues as long as the operation of the poison continues. I have examined the interior of animals that have been killed by strychnine; but I have not observed in such cases that the right side of the heart was usually full of blood. It is some years since I made such an examination; but I am able, nevertheless, to speak positively as to the state of the heart. It was usually empty on both sides. I do not agree with Dr. Taylor, or other authorities, in the opinion that in cases of tetanus animals die asphyxiated. If they did, we should invariably have the right side of the heart full of blood, which is not the case. I think that the term asphyxiated, or suffocated, is often very loosely used. I know from my reading that morphia sometimes produces convulsions; but I believe that they would be of an epileptic character. I think that the symptoms from morphia would be longer deferred in making their appearance than from strychnine; but I cannot speak positively on the point. Morphia, like strychnine, is a vegetable poison. I have not observed in animals the jaw fixed after the administration of strychnine.

Re-examined by the Attorney-General.—Whatever may be the true theory as to the emptiness of the heart after strychnine, I should say that it is more ordinarily empty than filled after tetanus. I think that the heart would be more contracted after strychnine than in ordinary tetanus. I do not believe that a medical practitioner would have any difficulty in distinguishing between ordinary convulsions and tetanic convulsions. I have heard the evidence of the gentlemen who made the post-mortem examination, and I apprehend that there was nothing to prevent the discovery of disease in the spinal cord had any existed previously to death.

Sir BENJAMIN BRODIE, examined by Mr. James, Q.C.—I have been for many years senior surgeon to St. George's Hospital, and have had considerable experience as a surgeon. In the course of my practice I have had under my care many cases of death from tetanus. Death from idiopathic tetanus is, according to my experience, very rare in this country. The ordinary tetanus in this country is traumatic tetanus. I have heard the symptoms which accompanied the death of Mr. Cook, and I am of opinion, that so far as there was a general contraction of the muscles, they resembled those of traumatic tetanus; but as to the course those symptoms took they were entirely different. I have attended to the detailed description of the attack suffered by Mr. Cook on the Monday night, its ceasing on Tuesday, and its renewal on the Tuesday night. The symptoms of traumatic tetanus always begin, so far as I have seen, very gradually, the stiffness of the lower jaw being, I believe, invariably, the symptom first complained of—at least, so it has been in my experience. The contraction of the muscles of the back is always a later symptom—generally much later. The muscles of the extremities are affected in a much less degree

than those of the neck and trunk, except in some cases where the injury has been in a limb, and an early symptom has been spasmodic contraction of the muscles of that limb. I do not myself recollect a case of ordinary tetanus in which occurred that contraction in the muscles of the hand which I understand was to have taken place in this instance. Again, ordinary tetanus rarely runs its course in less than two or three days, and often is protracted to a much longer period. I knew one case only in which the disease was said to have terminated in so short a time as twelve hours; but probably in that case the easy symptoms had been overlooked. Again, I never knew the symptoms of ordinary tetanus to last for a few minutes, then subside, and then come on again after twenty-four hours. I think that these are the principal points of difference which I perceived between the symptoms of ordinary tetanus and those which I have heard described in this case. I have not witnessed tetanic convulsions from strychnine on animal life. I do not believe that death in the case of Mr. Cook arose from what we ordinarily call tetanus—either idiopathic or traumatic. I never knew tetanus result from sore throat, or from a chancre, or from any other form of syphilitic disease. The symptoms were not the result either of apoplexy or of epilepsy. Perhaps I had better say at once that I never saw a case in which the symptoms that I have heard described here arose from any disease. When I say that, of course, I refer not to particular symptoms, but to the general course which the symptoms took.

Cross-examined by Mr. Serjeant Shee.—I believe I remember one case in the physician's ward of St. George's Hospital which was shown to me as a case of idiopathic tetanus, but I doubted whether it was tetanus at all. It was a slight case, and I do not remember the particulars.

Considering how rare cases of tetanus are, do you think that the description given by a chambermaid and by a provincial medical man, who had never seen but one case, is sufficient to enable you to form an opinion as to the nature of the case?—I must say I thought that the description was very clearly given.

Supposing that they differed in their description, which would you rely upon, the medical man or the chambermaid?

Baron ALDERSON.—That is hardly a question to put to a medical witness, although it may be a very proper observation for you to make to the jury.

Cross-examination continued.—I never knew syphilitic poison produce tetanic convulsions, except in cases where there was disease of the bones of the head.

(Sir Benjamin Brodie gave his evidence with great clearness—slowly, audibly, and distinctly.)

Mr. DANIELL, examined by the Attorney-General.—I was for many years surgeon to the Bristol Hospital, but have been out of practice for some time. In the course of a long practice I should think that I have seen at least thirty cases of tetanus. Two of those were certainly cases of idiopathic tetanus; one of them terminated fatally, the other did not. I quite agree with the other medical witnesses, that idiopathic tetanus is of very rare occurrence in this country. The only difference in the symptoms between idiopathic and traumatic tetanus that I have perceived was, that the former were more modified—not so severe—in their character. I was not able to trace these two cases of idiopathic tetanus to any particular cause. I have heard the description given of the symptoms which accompanied the attack upon Mr. Cook before his death, and it appears to me that the circumstances of that attack are assuredly distinguishable from those which came under my experience in dealing with cases of tetanus. The evidence of Sir B. Brodie quite expresses my opinion with respect to the difference of the symptoms between ordinary tetanus and tetanic convulsions produced by strychnine. Tetanus begins with uneasiness in the lower jaw, followed by spasms of the muscles of the trunk, and most frequently extending to the muscles of the limbs. Lock-jaw is almost invariably

a symptom of those cases of tetanus—of traumatic tetanus especially. I do not recollect that clenching of the hands is a usual symptom of ordinary tetanus, nor do I remember any twisting of the foot. I do not believe that any of these cases which came under my experience endured for a shorter time than from thirty to forty hours. I never knew a case of syphilitic sore producing tetanus. The symptoms, as they have been described, certainly cannot be referable to apoplexy or epilepsy. I never heard of such a thing. In all the cases of tetanus which came under my observation, consciousness has been retained to the last, throughout the whole disease. The symptoms have never set in in their full power from the commencement, but have invariably commenced in a milder form, and have then gone on increasing, being continuous in their character, and without intermission. In my judgment the symptoms in the case of Mr. Cook could not be referred either to idiopathic or traumatic tetanus.

Cross-examined by Mr. Grove, Q.C.—I have not read Dr. Curling's or Dr. Copeland's books on the subject of tetanus; nor have I of late studied much the reported cases. I am not aware that excitement or irritation from vomiting has ever been given as the cause of tetanus. The main symptoms of tetanus are, in my opinion, always very similar, although the inferior symptoms may vary simply. I cannot undertake to say that the convulsions of tetanus arise from the spine. I do not like the term "asphyxia," but I think that death from tetanic convulsions may probably arise from suffocation. It is many years since I saw a post-mortem upon a case of tetanus. I cannot say whether in the case of death from suffocation the heart would be full of blood or the reverse. An examination of the spinal cord or marrow never, so far as I know, afforded evidence of the cause to which the tetanus was to be attributed.

Mr. SAMUEL SOLLY, surgeon of St. Thomas's Hospital, examined by Mr. Welsby.—I have been connected with St. Thomas's Hospital as lecturer and surgeon for twenty-eight years, and during that time I have seen many cases of tetanus. I have had six or seven under my own care, and I may have seen ten or fifteen more. Of those cases it was doubtful in one whether the disease was idiopathic or traumatic—the wound was so slight and the symptoms so obscure that it was difficult to decide which it was. The others were all decidedly traumatic cases. The shortest period that I recollect during which the disease lasted before it terminated in death was thirty hours. The disease was always progressive in its character. I have heard the description given by the witnesses of Mr. Cook's attacks, and they differ essentially from those cases which I have seen. In my experience of tetanus there has always been a marked expression of countenance as the first symptom. It is a sort of grin, and is so peculiar that having once seen it you can never mistake it. In the symptoms that I heard detailed with regard to Mr. Cook, there were violent convulsions on Monday night, and on the Tuesday the individual was entirely free from any discomfort about the face or jaw; whereas in the case under my notice, the disease was always continuous, and the fixedness of the jaw was the last symptom to disappear. In my judgment, the symptoms detailed in Mr. Cook's case are referable neither to apoplexy, epilepsy, nor to any disease that I have ever witnessed.

Cross-examined by Mr. Serjeant Shee.—The sort of grin which I have described is known as *risus sardonicus*. It is not common to all convulsions. Epilepsy is a disease of a convulsive character. I heard the account given by Mr. Jones of the last few minutes of Mr. Cook's death—that he uttered a piercing shriek, and died after five or six minutes quietly. That last shriek and the paroxysm which accompanied it bear in some respects a resemblance to epilepsy. All convulsions which may be designated as of an epileptic character are not attended with an utter want of consciousness. Death from tetanus accompanied with convulsions, seldom leaves any trace behind it; but death from convulsions, arising from epilepsy, does leave its trace in the shape of a slight

effusion of blood on the brain, and a congestion of the vessels.

Re-examined by the Attorney-General.—The convulsions of epilepsy are accompanied by a variety of symptoms. When a patient dies of epilepsy, he dies perfectly unconscious and comatose. I never saw any case of convulsive disease at all like this. There are cases of convulsive disease which are similar to tetanus in their onset, but not in their progress. For example, laceration of the brain, a sudden injury to the spinal cord, and the irritation from teething in infants, will produce convulsions resulting in death; but there would be wanting the marked expression of the face which I have described, and which I have never missed in cases of tetanus.

Mr. HENRY LEE, surgeon to King's College and to the Lock Hospital, examined by Mr. Bodkin.—The Lock Hospital is exclusively devoted to cases of a syphilitic character, and at present I see probably as many as 8000 of those cases in the course of the year. I have never known an instance of that disease terminating in tetanus. I have never seen or read of a case either of primary or secondary symptoms resulting in tetanus.

Dr. HENRY CORBETT, of Glasgow, examined by Mr. James, Q.C.—In September, 1845, I was medical clerk at the Glasgow Infirmary, and I remember a patient, named Agnes Sennett, *alias* Agnes French, who died there on the 27th of September, 1845. It was stated that she had taken strychnine pills, which had been prepared for another patient in the ward, and the symptoms which accompanied her death were those of strychnine. The pills were for a paralytic patient. I saw her when she was under the influence of the poison, and I had seen her the day before that perfectly well. She had been admitted for a skin disease of the head. When I saw her after she had taken the poison she was in bed. The symptoms were these: There was a strong retraction of the mouth; the face was much suffused and red; the pupils of the eyes were dilated; the head was bent back; the spine was curved; the muscles were rigid and hard like a board; the arms were stretched out; the hands were clenched; and there were severe paroxysms recurring every few seconds. She died in about an hour and a quarter after taking the pills. When I was called first the paroxysms did not last so long; but they increased in severity. According to the prescription, there should have been a quarter of a grain of strychnine in each pill, and this woman had taken three. The paralytic patient was to have taken one pill each night, or one each night and morning, I forget which.

Cross-examined by Mr. Serjeant Shee.—The retraction of the mouth was continuous, but it was worse at times. I do not think that I observed it after death. The hands were not clenched after death—they were "semi-bent." She died an hour and a quarter after taking the medicine. The symptoms appeared about twenty minutes after. I tried to make her vomit with a feather, but failed. She only vomited partially after I had given her an emetic.

Re-examined by the Attorney-General.—There was spasmodic action and grinding of the teeth. She could open her mouth and swallow. There was no lock-jaw or ordinary tetanus.

By Mr. Serjeant Shee.—I do not recollect that touching her sent her into paroxysms.

Dr. WATSON, examined by the Attorney-General.—I am a surgeon at the Glasgow Infirmary. I remember the case of Agnes Sennett. I was called in about a quarter of an hour after she was taken ill. She was in violent convulsions, and her arms were stretched out and rigid. The muscles of the body were also rigid; they were kept quiet by rigidity. She did not breathe, the muscles being kept still by tetanic rigidity. That paroxysm subsided, and fresh paroxysms came on after a short interval. She died in about half an hour. She seemed perfectly conscious. I don't recollect the state of her hands. Her body was opened. The heart was found distended and stiff. The cavities of the heart were empty. My father published an account of the case. The spinal cord was quite healthy.

Dr. J. PATTERSON, examined by Mr. Welsby.—In 1845 I was engaged in the laboratory of the Infirmary at Glasgow. I dispensed the prescriptions. I made up a prescription for a paralytic patient named McIntyre. It consisted of pills which contained strychnine. There were four pills and one grain of strychnine in the four.

Mr. Baron ALDERSON.—Was any noise made about their being taken by a wrong person?—Yes.

MARY KELLY, examined by Mr. Bodkin.—In September, 1845, I was a patient in the Glasgow Infirmary; a paralytic patient was in the same ward, and I attended to her. There was also a patient named French or Sennett, who was suffering from a sore head. She died. I was turning a wheel near the paralytic patient on the afternoon of the day Sennett died, for the purpose of applying something to her skin. There were some pills which she was to take near her. The paralytic woman took one and swallowed it, according to the orders that had been given, and then handed the box to the girl with the sore head. The girl swallowed two of the pills, and then went and sat by the ward fire. She was taken ill in about three-quarters of an hour. She fell back on the floor, and I went for the nurse. We took her to bed, and sent for the doctor. We were obliged to cut her clothes off, because she never moved. She was like a poker. I was by her side when she died. She never spoke after she fell down. It was three-quarters of an hour from the time she took the pills till she was taken to the bed.

CAROLINE HICKSON, examined by Mr. E. James.—In October, 1848, I was nurse and lady's-maid in the family of Mr. Sarjantson Smyth. The family were then residing about two miles from Romsey. On the 30th of October Mrs. Smyth was unwell. We dealt with Mr. Jones, a druggist in Romsey. A prescription had been sent to him to be made up for Mrs. Smyth. The medicine was brought back about six in the afternoon. It was a mixture in a bottle. My mistress took about half a wineglassful of it the following morning, at five or ten minutes past seven. I left the room when I had given it her. Five or ten minutes afterwards I was alarmed by the ringing of her bell. I went into her room, and found her out of bed leaning upon a chair, in her night-dress. I thought she had fainted. She appeared to suffer from what I thought was spasms. I ran and sent the coachman for Mr. Taylor, the surgeon, and returned to her. Some of the other servants were there assisting her. She was lying on the floor. She screamed loudly, and her teeth were clenched. She asked to have her arms and legs held straight. I took hold of her arms and legs, which were very much drawn up. She still screamed, and was in great agony. She requested that water should be thrown over her, and I threw some. Her feet were turned inwards. I put a bottle of hot water to her feet, but that did not relax them. Shortly before she died, she said she felt easier. The last words she uttered were—"Turn me over." We did turn her over on the floor. She died a very few minutes after she had spoken those words. She died very quietly. She was quite conscious, and knew me during the whole time. About an hour and a quarter elapsed from the time I gave her the medicine till she died.

Cross-examined by Mr. Grove.—She could not sit up from the time I went up to her till she died. It was when she was in a paroxysm that I endeavoured to straighten her limbs. The effect of cold water was to throw her into a paroxysm. It was a continually recurring attack, lasting about an hour or an hour and a quarter. Her teeth were clenched during the whole time.

Re-examined by the Attorney-General.—The fit came on five or ten minutes after I gave her the medicine. She was stiff all the time till within a few minutes after death. She was conscious all the while.

Mr. FRANCIS TAYLOR, examined by Mr. Welsby.—I am a surgeon and apothecary at Romsey. I attended Mrs. Sarjantson Smyth in 1848. I was summoned to her house one morning soon after eight, and when I arrived I found her dead. The body was on the floor, near the

bed. The hands were very much bent. The feet were contracted and turned inwards. The soles of the feet were hollowed up and the toes contracted, apparently from recent spasmodic action. The inner edge of each foot was turned up. There was a remarkable rigidity about the limbs. The body was warm. The eyelids were almost adherent to the eyeballs. The druggist who made up the prescription was named Jones. I made a post-mortem examination three days after death. The contraction of the feet continued, but it had gone off somewhat from the rest of the body. I found no traces of disease in the body. The heart was contracted and perfectly empty, as were all the large arteries leading from it. I analysed the medicine she had taken with another medical man. It contained a large quantity of strychnine. It originally contained nine grains, and she had taken one-third—three grains. I made a very casual examination of the stomach and bowels, as we had plenty of proof that poison had been taken without making use of tests.

Cross-examined by Mr. Serjeant Shee.—In cases of death from ordinary causes the body is much distorted. It does not generally, I should think, remain in the same position after death.

If the body is not laid out immediately is it not stiffened by the *rigor mortis*?—Probably it is. The ankles were tied by a bandage to keep them together. I commenced to open the body at the thorax and abdomen. The head was also opened.

CHARLES BLOXHAM, examined by Mr. Huddleston.—I was apprentice to Mr. Jones, the chemist, at Romsey, in 1848. My master made a mistake in preparing a prescription for Mrs. Smyth. The mistake was the substitution of strychnine for salicine. He destroyed himself afterwards.

JANE WITHAM, examined by Mr. E. James.—In March last I was in attendance upon a lady who died. (Lord Campbell told the witness she need not mention the lady's name.) She took some medicine. After she took it she became ill. She complained first of her back. Her head was thrown back, her body stretched out, and I observed twitchings. Her eyes were drawn aside and staring. I put my hand upon her limbs, which did not at all relax. She first complained of being ill in that way on Monday, the 25th of February, and died on Saturday, the 1st of March. She had attacks on the Monday, on the Wednesday, on the Thursday, on the Friday (a very slight one), and at a quarter past eight on the Saturday morning. She died about twenty minutes to eleven that night. Between the attacks she was composed. She principally complained of prickings in the legs and twitchings in the muscles and in the hands, which she said she could compare to nothing else than a galvanic shock. She wished her husband to rub her legs and arms. She was dead when Mr. Morley came.

Cross-examined by Mr. Serjeant Shee.—On the Saturday night she could not bear to have her legs touched when the spasms were strong upon her. Her limbs were rigidly extended when she asked to be rubbed. That was in the intervals between the spasms. Touching her then brought on the spasms. Her body was stiff immediately after death, but I did not stay long in the house. On the Saturday she was sensible from half an hour to an hour, from a quarter past eight till after nine. I suppose she was insensible the remainder of the time. She did not speak.

Re-examined by Mr. E. James.—On the Saturday before she died the symptoms were the same as on the other days—not more violent.

Mr. MORLEY, examined by Mr. Welsby.—I am a surgeon.—I attended on the lady to whom the last witness has alluded, for about two months before her death. On the Monday before she died she was in bed apparently comfortable, when I observed (as I stood by her side) several slight convulsive twitchings of her arms. I supposed they arose from hysteria, and ordered medicine in consequence. The same symptoms were repeated on the following Wednesday or Thursday. I saw her on Saturday, the day she died. She was apparently better, and

be obtained!—There are a variety of mixtures which produce similar colours. One of them has also a bitter taste like strychnia. Vegetable poisons are more difficult of detection by chemical process than mineral poisons; the tests are far more fallacious. I have endeavoured to discover the presence of strychnine in animals I have poisoned in four cases, assisted by Dr. Rees. I have applied the process which I first described. I have then applied the tests of colouring and of taste.

Were you able to satisfy yourself of the presence of strychnia?—In one case I discovered some by the colour test. In the second case there was a bitter taste, but no other indication of strychnia. In the other two cases there were no indications at all of strychnia. In the case where it was discovered by a colour test two grains had been administered; and in the second case, where there was a bitter taste, one grain. In one of the cases where we failed to detect it, one grain, and in the other, half a grain had been given.

How do you account for the absence of any indication of strychnia in cases where you know it was administered?—It is absorbed into the blood, and is no longer in the stomach. It is in a great part changed in the blood.

How do you account for its presence when administered in large doses?—There is a retention of some in excess of what is required for the destruction of life.

Supposing a minimum dose, which will destroy life, has been given, could you find any?—No. It is taken up by absorption and is no longer discoverable in the stomach. The smallest quantity by which I have destroyed the life of an animal is half a grain. There is no process with which I am acquainted by which it can be discovered in the tissues. As far as I know, a small quantity cannot be discovered.

Suppose half a grain to be absorbed into the blood, what proportion does it bear to the total quantity of blood circulated in the system?—Assuming the system to contain the lowest quantity of blood, 25lb., it would be 1-50th of a grain to a pound of blood. A physician once died in twenty minutes from a dose of half a grain. I believe it undergoes some partial change in the blood, which increases the difficulty of discovering it. I never heard of its being separated from the tissues in a crystallized state. The crystals are peculiar in form, but there are other organic crystallized substances like them, so that a chemist will not rely on the form only. After the post-mortem examination of Cook, a portion of the stomach was sent to me. It was delivered to me by Mr. Boycott, in a brown stone jar, covered with bladder, tied, and sealed. The jar contained the stomach and the intestines. I have experimented upon them with a view to ascertain if there was any poison present.

What poisons did you seek for in the first instance?—Various,—prussic acid, oxalic acid, morphia, strychnia, veratrin, tobacco poison, hemlock, arsenic, antimony, mercury, and other mineral poisons.

Did you find any of them?—We only found small traces of antimony.

Were the parts upon which you had to operate in your search for strychnia in a favourable condition?—The most unfavourable that could possibly be. The stomach had been completely cut from end to end, all the contents were gone, and the fine mucous surface, on which any poison, if present, would have been found, was lying in contact with the outside of the intestines—all thrown together. The inside of the stomach was lying in the mass of intestinal feculent matter.

That was the fault or misfortune of the person who dissected?—I presume it was; but it seemed to have been shaking about in every possible way in the journey to London. The contents of the intestines were there, but not the contents of the stomach, in which and on the mucous membrane I should have expected to find poison. By my own request other portions of the body were sent up to me,—namely, the spleen, the two kidneys, and a small bottle of blood. They were delivered to me by Mr. Boycott. We had no idea whence the blood had been taken. We analyzed all. We searched in the liver and one of the kidneys for mineral

poison. Each part of the liver, one kidney, and the spleen, all yielded antimony. The quantity was less in proportion in the spleen than in the other parts. It was reproduced, or brought out, by boiling the animal substance in a mixture of hydrochloric acid and water. Gall and copper-water were also introduced, and the antimony was found deposited on the copper. We applied various tests to it—those of Professor Brande, of Dr. Rees, and others. I detected some antimony in the blood. It is impossible to say with precision how recently it had been administered: but I should say within some days. The longest period at which antimony can be found in the blood after death is eight days; the earliest period at which it has been found after death, within my own knowledge, is eighteen hours. A boy died within eighteen hours after taking it; and it was found in the liver. Antimony is usually given in the form of tartar emetic; it acts as an irritant, and produces vomiting. If given in repeated doses, a portion would find its way into the blood and the system beyond what was ejected. If it continued to be given after it had produced certain symptoms it would destroy life. It may, however, be given with impunity. I heard the account given by the female servants of the frequent vomitings of Mr. Cook, both at Rugeley and at Shrewsbury, and also the evidence of Mr. Gibson and Mr. Jones as to the predominant symptoms in his case. Vomitings produced by antimony would cause those symptoms. If given in small quantities sufficient to cause vomiting, it would not affect the colour of the liquid in which it was mixed, whether brandy, wine, broth, or water. It is impossible to form an exact judgment as to the time when the antimony was administered, but it must have been within two or three weeks, at the outside, before death. There was no evidence that any had been given within some hours of death. It might leave a sensation in the throat—a choking sensation—if a large quantity was taken at once. I found no trace of mercury during the analysis. If a few grains had been taken recently before death, I should have expected to find some trace. If a man had taken mercury for a syphilitic affection within two or three weeks, I should have expected to find it. It is very slow in passing out of the body. As small a quantity as three or four grains might leave some trace. I recollect a case in which three grains of calomel were given three or four hours before death, and traces of mercury were found. Half a grain three or four days before death, if favourably given and not vomited, would, I should expect, leave a trace. One grain would certainly do so. I heard the evidence as to the death of Mrs. Smyth, Agnes French, and the other lady mentioned, and also as to the attack of Clutterbuck.

From your own experience in reference to strychnine, do you coincide in opinion with the other witnesses, that the deaths in those cases were caused by strychnine?—Yes.

Did the symptoms in Cook's case appear to be of a similar character to the symptoms in those cases?—They did.

As a professor of medical science, do you know any cause in the range of human disease, except strychnine, to which the symptoms in Cook's case can be referred?—I do not.

Cross-examined by Mr. Serjeant Shee.—I mean by the word "trace" a very small quantity, which can hardly be estimated by weight. I do not apply it in the sense of an imponderable quantity. In chemical language it is frequently used in that sense. An infinitesimal quantity would be called "a trace." The quantity of antimony that we discovered in all parts of the body would make up about half a grain. We did not ascertain that there was that quantity, but I will undertake to say that we extracted as much as half a grain. That quantity would not be sufficient to cause death. Only arsenic or antimony could have been deposited, under the circumstances, on the copper, and no sublimate of arsenic was obtained. [The witness, in reply to a further question, detailed the elaborate test which he had applied to the deposit, in order to ascertain that it consisted of antimony.]

Would a mistake in any one of the processes you have described, or a defect in any of the materials you used, defeat the object of the test?—It would, but all the materials I used were pure. Such an accident could not have happened without my having some intimation of it in the course of the process. I should think antimony would operate more quickly upon animals than upon men. I am acquainted with the works of Orfila. He stood in the highest rank of analytical chemists.

Did not Orfila find antimony in a dog four months after injection?—Yes; but the animal had taken about forty-five grains.

Mr. Serjeant Shee called the attention of the witness to a passage in Orfila's work in reference to that case, to the effect that the antimony was found accumulating in the bones, the liver contained a great deal, and the tissues a very little.

Witness.—Yes; when antimony has been long in the body it passes into the bones; but I think you will find that these are not Orfila's experiments. Orfila is quoting the experiments of another person.

But is not that the case with nearly all the experiments referred to in your own book?—No; I cannot say that.

Mr. Serjeant Shee again referred to the case in Orfila, in which forty-five grains were given to a dog, and three and a half months after death a quantity was found in the fat, and some in the liver, bones, and tissues.

Witness.—That shows that antimony gets into the bones and flesh, but I never knew a case in which forty-five grains had been given, and I have given no opinion upon such a case.

A pretty good dose is required to poison a person, I suppose!—That depends on the mode in which it is given. A dog has been poisoned with six grains. The dog died in the case you mentioned. When antimony is administered as it was in that case, the liver becomes fatty and gristled. Cook's liver presented no appearance of the sort. I should infer that the antimony we found in Cook's body was given much more recently than in the experiments you have described. We cannot say positively how long it takes to get out of the body, but I have known three grains cleared out in twenty-four hours. I was first applied to in this case on Thursday, the 27th of November, by Mr. Stevens, who was introduced to me by Mr. Warrington, professor of chemistry. Either then or subsequently he mentioned Mr. Gardner. I had not known Mr. Gardner before. I had never before been concerned in cases of this kind at Rugeley.

Mr. Serjeant Shee read the letter written by Dr. Taylor to Mr. Gardner:—

“Chemical Laboratory, Guy's Hospital,
Dec. 4, 1855.

“Re J. P. Cook, Esq., deceased.

“Dear Sir,—Dr. Rees and I have completed the analysis to-day. We have sketched a report, which will be ready to-morrow or next day.

“As I am going to Durham Assizes on the part of the Crown, in the case of *Reg. v. Wooller*, the report will be in the hands of Dr. Rees, No. 26 Albemarle-street. It will be most desirable that Mr. Stevens should call on Dr. Rees, read the report with him, and put such questions as may occur.

“In reply to your letter received here this morning, I beg to say that we wish a statement of all the medicines prescribed for deceased (until his death) to be drawn up and sent to Dr. Rees.

“We do not find strychnine, prussic acid, or any trace of opium. From the contents having been drained away, it is now impossible to say whether any strychnine had or had not been given just before death, but it is quite possible for tartar emetic to destroy life if given in repeated doses; and, so far as we can at present form an opinion, in the absence of any natural cause of death,

the deceased may have died from the effects of antimony in this or some other form.

“We are, dear Sir, yours faithfully,

“ALFRED S. TAYLOR.

“G. OWEN REES.”

Was that your opinion at the time?—It was. We could infer nothing else.

Have you not said that the quantity of antimony you found was not sufficient to account for death?—Certainly. If a man takes antimony, he first vomits, and then a part of the antimony goes out of the body; some may escape from the bowels. A great deal passes at once into the blood by absorption, and is carried out by the urine.

Can you say upon your oath that from the traces in Cook's body you were justified in stating your opinion that death was caused by antimony?—Yes, perfectly and distinctly. That which is found in a dead body is not the slightest criterion as to what the man took when he was alive.

When you gave your opinion that Cook died from the effects of antimony, had you any reason to think that an undue quantity had been administered?—I could not tell. People may die from large or small quantities; the quantity found in the body was no criterion as to how much he had taken.

May not the injudicious use of a quack medicine containing antimony, the injudicious use of James's Powders, account for the antimony you found in the body?—Yes; the injudicious use of any antimonial medicine would account for it.

Or even their judicious use?—It might.

With that knowledge, upon being consulted with regard to Cook, you gave it as your opinion that he died from the poison of antimony?—You pervert my meaning entirely. I said that antimony in the form of tartar emetic might occasion vomiting and other symptoms of irritation, and that in large doses it would cause death, preceded by convulsions. (The witness was proceeding to read his report upon the case, but was stopped by the Court.) I was told that the deceased was in good health seven or eight days before his death, and that he had been taken very sick and ill, and had died in convulsions. No further particulars being given us, we were left to suppose that he had not died a natural death. There was no natural cause to account for death, and finding antimony existing throughout the body, we thought it might have been caused by antimony. An analysis cannot be made effectually without information.

You think it necessary before you can rely upon an analysis to have received a long statement of the symptoms before death?—A short statement will do.

You allow your judgment to be influenced by the statement of a person who knows nothing of his own knowledge?—I do not allow my judgment to be influenced in any way; I judge by the result.

Do you mean to say that what Mr. Stevens told you did not assist you in arriving at the conclusion you state in writing?—I stated it as a possible case,—not as a certainty. If we had found a very large quantity of tartar emetic in the stomach, we should have come to the conclusion that the man had died from it. As we found only a small quantity, we said he might have died from it. I attended the coroner's inquest on the body of Mr. Cook. I think I first attended on the 14th of December. Some of the evidence was read over to me. I think that Dr. Harland was the first witness I heard examined. I heard Dr. Bamford examined, and also Lavinia Barnes. I cannot say as to Newton. I heard Jones. I had experimented some years ago on five of the rabbits I have mentioned; that is about twenty-three years ago. That is the only knowledge of my own that I had of the effects of strychnia upon animal life. I have a great objection to the sacrifice of life. No toxicologist will sacrifice the lives of a hundred rabbits to establish facts which he knows to be already well established. I experimented upon the last rabbits since the inquest.

Do not you think that is a very slight experiment!—You must add to experiment the study of poisons and cases.

Do not you think that a rabbit is a very unfair animal to select!—No.

Would not a dog be much better!—Dogs are very dangerous to handle. (A laugh.)

Do you mean to give that answer!—Dogs and cats bear a greater analogy to man, because they vomit, while rabbits do not, but rabbits are much more manageable.

Mr. Serjeant Shee.—I will take your answer that you are afraid of dogs.

Witness.—After the experiments I have tried with dogs and cats I have no inclination to go on.

Do you admit that, as to the action of the respiratory organs, they would be better than rabbits!—I do not.

As to the effect of the poison, would they not!—I think a rabbit is quite as good as any animal. The poison is retained, and its operation is shown. At the inquest I saw Mr. Gardner. I suggested questions to the coroner. Some of them he put to the witnesses, and others they answered upon my suggestion of them. Ten days before the inquest Mr. Gardner informed me, in his letter, that strychnia, Battley's solution, and prussic acid, had been purchased on the Tuesday; that was why I used the expressions to which you have referred. We did not allow that information to have any influence upon our report.

At the request of Mr. Serjeant Shee, the deposition of this witness taken at the coroner's inquest was read by the clerk of arraigns.

Cross-examination continued.—Having given my evidence, I returned to town, and soon afterwards heard that the prisoner had been committed on a charge of wilful murder.

And that his life depended in a great degree upon you!—No; I simply gave an opinion as to the poison, not as to the prisoner's case; I knew that I should probably be examined as a witness on his trial.

Do you think it your duty to abstain from all public discussion on the question, which might influence the public mind!—Yes.

Did you write a letter to THE LANCET!—Yes; to contradict several misstatements of my evidence which had been made!

This letter, which appeared in THE LANCET of February 2, 1856, was put in by Mr. Serjeant Shee, and read by the clerk of the arraigns. It was as follows:

THE RUGELEY SUSPECTED SECRET POISONING CASES.

To the Editor of THE LANCET.

SIR,—I have great pleasure in replying to the inquiries contained in your leading article of January 19th.

1. I stated that I had never known antimonial powder, when given in medicinal doses, (i. e. from five to eight grains at a dose), to produce violent vomiting and purging.

I am aware that experience differs on this point; that some have found this substance inert, while others have found it very active. From some recent experiments on antimonial preparations, I think it not unlikely that the powder may sometimes contain arseniate of lime. Dr. Pereira mentions that in the large dose of half a teaspoonful, it, on one occasion, produced violent vomiting, purging, and sweating; while in still larger doses (120 grains at a dose), prescribed by Dr. Elliotson, it occasioned in some instances only nausea. I have never met with any case in which serious symptoms could be referred to its operation; and in the case of Ann Palmer this medicinal preparation would not account for the antimony found in her body.

2. My statement as to the cause of death was, that the deceased died from the effects of tartar emetic, and from no other cause. That is the opinion which Dr. Rees and I formed from the result of our examination, and from the description of the symptoms under which the deceased laboured during the eight days which pre-

ceded her death. It is an opinion which I believe is now equally shared by the two medical attendants of the deceased. We are quite prepared to maintain this opinion on the trial. You will excuse me from entering into our reasons for this opinion on the present occasion, as this may form a very fair and proper subject for cross-examination at the trial. Possibly the defence may be, that tartar emetic in small doses is not a poison; that it cannot, under any circumstances, destroy life, and that it was the very best remedy for the disease (English cholera) under which it was stated the deceased was labouring.

One other point connected with this inquiry may be here adverted to. The examination of the organs was made *fifteen months*, not "fifteen weeks," after death, and the viscera examined were as well preserved as I have seen them in many cases of arsenical poisoning. They were in a better state of preservation than the viscera of Walter Palmer, whose body had been buried for a period of three months only, in a leaden coffin. The viscera in Ann Palmer's case were in such a state of preservation as to allow us to form an opinion of their condition.

3. This inquiry refers to the elimination of antimony from the body. According to my experience, antimony is analogous to arsenic in the rapidity with which it enters into the blood and passes out of the system. These two metals are wholly different in this respect from mercury and lead, and probably from copper. I shall be most happy after the trial to furnish you with facts and authorities, as far as I can, in reference to these interesting points. In the meantime, as this question may also form a fair subject for cross-examination, a detailed answer to it may be for the present reserved.

4. The fourth inquiry involves, as you have justly suspected, an error of the press. What I said was to the effect, that if there were symptoms of fever, antimonial medicines might be fairly prescribed.

In concluding this letter, I would observe that, during a quarter of a century which I have now specially devoted to toxicological inquiries, I have never met with any cases like these suspected cases of poisoning at Rugeley. The mode in which they will affect the person accused is of minor importance compared with their probable influence on society. I have no hesitation in saying that the future security of life in this country will mainly depend on the judge, the jury, and the counsel who may have to dispose of the charges of murder which have arisen out of these investigations.

I am, Sir, your obedient servant,

ALFRED S. TAYLOR, M.D., F.R.S.

St. James's-terrace, Regent's-park, Jan., 1856.

Cross-examination continued.—That is my opinion now. It had been stated that if strychnia caused death it could always be found, which I deny. It had also been circulated in every newspaper that a person could not be killed by tartar emetic, which I deny, and which might have led to the destruction of hundreds of lives. I entertained no prejudice against the prisoner. What I meant was, that if these statements, which I had seen in medical and other periodicals, were to have their way there was not a life in the country which was safe.

Do you adhere to your opinion that "the mode in which they will affect the person accused," that is, lead him to the scaffold, "is of minor importance, compared with their probable influence on society!"—I have never suggested that they should lead him to the scaffold. I hope that, if innocent, he will be acquitted.

What do you mean by the mode in which they will affect the person accused being of minor importance!—The lives of 16,000,000 of the people are, in my opinion, of greater importance than that of one man.

That is your opinion!—Yes. As you appear to put that as an objection to my evidence, allow me to state that in two dead bodies I find antimony. In one case death occurred suddenly, and in the other the body was saturated with antimony, which I never found before in

the examination of 300 bodies. I say these were circumstances which demanded explanation.

You adhere to the opinion that, as a medical man and a member of an honourable profession, you were right in publishing this letter before the trial of the person accused?—I think I had a right to state that opinion in answer to the comments which had been made upon my evidence.

Had any comments been made by the prisoner?—No.

Or by any of his family?—Mr. Smith, the solicitor for the defence, circulated in every paper statements of "Dr. Taylor's inaccuracy." I had no wish or motive to charge the prisoner with this crime. My duty concerns the lives of all.

Do you know Mr. Augustus Mayhew, the editor of the *Illustrated Times*?—I have seen him one or twice.

Did you allow pictures of yourself and Dr. Rees to be taken for publication?—Be so good as to call them caricatures. No; I did not.

Mr. Serjeant Shee.—There may be a difference of opinion as to that. I think they are very like.

Did you receive Mr. Mayhew at your house?—He came to me with a letter of introduction from Professor Faraday. I never received him in my laboratory.

Did you know that he called in order that you might afford him information for an article in the *Illustrated Times*?—I swear solemnly I did not. The publication of that article was the most disgraceful thing I ever knew. I had never seen him before, nor did I know that he was the editor of the *Illustrated Times*.

On your oath!—On my oath. It was the greatest deception that was ever practised on a scientific man. It was disgraceful. He called on me in company with another gentleman, with a letter from Professor Faraday. I received him as I should Professor Faraday, and entered into conversation with him about these cases. He represented, as I understood, that he was connected with an insurance company, and wished for information about a number of cases of poisoning which had occurred during many years. After we had conversed about an hour he asked if there was any objection to the publication of these details. Still believing him to be connected with an insurance office, I replied that, so far as the correction of error was concerned, I should have no objection to anything appearing. On that evening he went away without telling me that he was the editor of the *Illustrated Times*, or connected with any other paper. I did not know that, until he called upon me on Thursday morning, and showed me the article in print. I remonstrated verbally with him. He only showed me part of a slip. I told him I objected to its publication, and struck out all that I saw regarding these cases. He afterwards put the article into the shape in which it appeared. I could not prevent his publishing the results of our conversation on points not connected with these cases.

You did permit him to publish part of the slip?—Nothing connected with the Rugeley cases.

Did he show you the slip of "Our Interview with Dr. A. Taylor"?—I do not remember seeing that. I will swear that, to the best of my judgment and belief, he did not. He showed me a slip containing part of what appeared in that article. I struck out all which referred to the Rugeley cases. I thought I had been deceived. A person came with a letter of introduction from a scientific man, and extracted information from me.

Why did you not tell your servant to show him the door?—Until we had had the conversation I did not know anything about the deception. It was not until the Thursday morning that I knew he was connected with a paper. He told me it was an illustrated paper.

Did you correct what he showed you?—I struck out some portions.

And allowed the rest to be published?—I said I had nothing to do with it, but I objected to its publication.

Peremptorily?—No; I said, "I do not like this mode of putting the matter. I cannot, however, interfere with what you put into your journal."

Did you not protest as a gentleman, a man of honour, 7—VOL. II.

and a medical man, that it was wrong and objectionable to do it?—I told him that I objected to the parts which referred to the Rugeley cases. It was most dishonourable.

Did you not know that in the month of February an interview with Dr. Taylor on the subject of poison must be taken to apply to those cases?—I did not think anything about it. I thought it was a great cheat to extract from me that information. Mr. Mayhew was with me about twenty minutes or half an hour on the Thursday morning. I remonstrated with him. I was not angry with him in the sense of quarrelling.

Did you allow him to publish this?—Dr. Taylor here requested us to state that, although the practice of secret poisoning appeared to be on the increase, it should be remembered that by analysis the chemist could always detect the presence of poison in the body?—I did not request him to state anything of the kind. I do not remember whether that was on the slip. Had I seen it I should have struck it out. I remember seeing on the slip, "And that when analysis fails, as in cases where small doses of strychnia had been administered, physiology and pathology would invariably suffice to establish the cause of death." I did not strike that out. I did not think of it circulating amongst the class of persons from whom jurors would be selected. I think the public ought to know that chemical analyses are not the only tests on which they can rely. I don't remember the passage—"Murder by poison could be detected as readily as murder in any other form, while the difficulty of detecting and convicting the murderer was felt in other cases as well as in those where poison was employed." The article has been very much altered. It was a disgraceful thing. I have not seen Mr. Mayhew since. Seeing in *The Times* an advertisement, stating that this information had been given by me, I wrote to him demanding its withdrawal, and that demand was complied with. That was on the Thursday or Friday.

Did you say to a gentleman named Cook Evans that you would give them strychnia enough before they had done, or words to that effect?—No; I do not know the person.

Or to any one?—No. I never used any expression so vulgar and improper. You have been greatly misinstructed.

Or, "He will have strychnia enough before I have done with him!"—It is utterly false. The person who suggested that question to you, Mr. Johnson, has been guilty of other falsehoods. In the letter to Sir George Grey, and on other occasions, he has misrepresented my statements and evidence.

What did you do with the medical report to which you referred?—It was a private letter from Dr. Harland to Mr. Stevens.

Mr. Justice CRESSWELL.—It was memoranda made by Dr. Harland at the time.

Cross-examination continued.—Cook's symptoms were quite in accordance with an ordinary case of poisoning by strychnia.

Can you tell me of any case in which a patient, after being seized with tetanic symptoms, sat up in bed and talked?—It was after he sat up that Cook was seized with those symptoms.

Can you refer to a case in which a person who had taken strychnia beat the bed with his or her arms?—It is exactly what I should expect to arise from a sense of suffocation.

Do you know any case in which the symptoms of poisoning by strychnia commenced with this beating of the bed-clothes?—There have been only about fifteen cases, and in none of those was the patient seized in bed. Beating of the bed-clothes is a symptom which may be exhibited by a person suffering from a sense of suffocation, whether caused by strychnia or other causes. A case has been communicated to me by a friend, in which the patient shook as though he had the ague.

Mr. Serjeant SHEE objected to this last answer; but as the learned serjeant had been questioning the witness as to the results of his reading,

The Court ruled that the evidence was admissible.

Cross-examination continued.—I have known of no case of poisoning by strychnia in which the patient screamed before he was seized. That is common in ordinary convulsions. In cases of poisoning by strychnia, the patient screams when the spasms set in; the pain is very severe. I cannot refer to a case in which the patient has spoken freely after the paroxysms had commenced.

Can you refer me to any case in an authentic publication in which the access of the strychnia paroxysm has been delayed so long after the ingestion of the poison as in the case of Cook on the Tuesday night?—Yes, longer. In my book on Medical Jurisprudence, page 185 of the fifth edition, it is stated that in a case communicated to *THE LANCET*, August 31st, 1850, by Mr. Bennett, a grain and a half of strychnia, taken by mistake, destroyed the life of a healthy young female in an hour and a half. None of the symptoms appeared for an hour. There is a case in which the period which elapsed was two hours and a half. It was not a fatal case, but that does not affect the question. A grain and a half is a full, but not a very considerable dose. In my book on Poisons, there is no case in which the paroxysm commenced more than half an hour after the ingestion of the poison. That book is eight years old, and since 1848 cases have occurred. There is a mention of one in which three hours elapsed before the paroxysms occurred.

Mr. Serjeant SHEP then referred to this case, and called attention to the fact, that the only statement as to time was, that in three hours the patient lost his speech, and at length was seized with violent tetanic convulsions.

Cross-examination continued.—I know of no other fatal case in which the interval was so long. In that case there was disease of the brain. Referring to *THE LANCET*, I find that in the case to which I referred, as communicated by Dr. Bennett, the strychnia was dissolved in cinnamon-water. Being dissolved, one would have expected it to have a more speedy action. The time in which a patient would recover would depend entirely upon the dose of strychnia which had been taken. I do not remember any case in which a patient recovered in three or four hours, but such cases must have occurred. There is one mentioned in my book on "Medical Jurisprudence." The patient had taken nux vomica, but its powers depend upon strychnia. In that case the violence of the paroxysms gradually subsided, and the next day, although feeble and exhausted, the patient was able to walk home. The time of the recovery is a point which is not usually stated by medical men. I cannot mention any case in which there was a repetition of the paroxysms after so long an interval as that from Monday to Tuesday night, which occurred in Cook's case. I do not think that the attack on Tuesday night was the result of anything which had been administered to him on the Monday night. In the cases of four out of five rabbits the spasms were continued at the time of death and after death; in the other the animal was flaccid at the time of death.

Are you acquainted with this opinion of Dr. Christison—that in these cases rigidity does not come on at the time of death, but comes on shortly afterwards?—Dr. Christison speaks from his experience, and I from mine.

Did you hear that Mr. Bamford said that when he arrived he found the body of Cook quite straight in bed?—Yes.

Can that have been a case of opisthotonos?—It may have been.

Are not the colour tests of strychnia so uncertain and fallacious that they cannot be depended upon?—Yes, unless you first get the strychnia in a visible and tangible form.

Is it not impossible to get it so from the stomach?—It is not impossible; it depends upon the quantity which remains there.

You do not agree that a fiftieth part of a grain might be discovered?—I think not.

Nor even half a grain?—That might be. It would depend upon the quantity of food in the stomach with which it was mixed.

Re-examined by the Attorney-General.—In cases of death from strychnia the heart is sometimes found empty after death. That is the case with human subjects. There are three such cases on record. I think that emptiness results from spasmodic affection of the heart. I know of no reason why that should rather occur in the case of a man than in that of a small animal like a rabbit. The heart is generally more filled when the paroxysms are frequent. When the paroxysm is short and violent, and causes death in a few moments, I should expect to find the heart empty. The rigidity after death always affects the same muscles—those of the limbs and back. In the case of the rabbit, in which the rigidity was relaxed at the time of death, it returned while the body was warm. In ordinary death it only appears when the body is cold, or nearly so. I never knew a case of tetanus in which the rigidity lasted two months after death; but such a fact would give me the impression that there were very violent spasms. It would indicate great violence of the spasms from which the person died. The time which elapses between the taking of strychnia and the commencement of the paroxysms depends on the constitution and strength of the individual. A feeling of suffocation is one of the earliest symptoms of poisoning by strychnia, and that would lead the patient to beat the bed-clothes. I have no doubt that the substances I used for the purpose of analysis were pure; I had tested them. The fact that three distinct processes each gave the same result was strong confirmation of each. I have no doubt that what we found was antimony. The quantity found does not enable me to say how much was taken; it might be the residue of either large or small doses. Sickness would throw off some portion of the antimony which had been administered. We did not analyze the bones and tissues.

Why did you suggest questions to the coroner?—He did not put questions which enabled me to form an opinion. I think that arose rather from want of knowledge than from intention. There was an omission to take down the answers. I made no observation upon that subject. At the time I wrote to Mr. Gardner I had not learnt the symptoms which attended the attack and death of Cook. I had only the information that he was well seven days before he died, and had died in convulsions. I had no information which could lead me to suppose that strychnia had been the cause of death, except that Palmer had purchased strychnia. Failing to find opium, prussic acid, or strychnia, I referred to antimony as the only substance found in the body. Before writing to *THE LANCET* I had been made the subject of a great many attacks. What I said as to the possibility or impossibility of discovering strychnia after death, had been misrepresented. In various newspapers it had been represented that I had said that strychnia could never be detected,—that it was destroyed by putrefaction. What I said was, that when absorbed into the blood it could not be separated as strychnia. I wrote the letter for my own vindication.

Dr. G. O. REES, examined by Mr. E. James, Q.C., said, —I am lecturer on Materia Medica at Guy's Hospital, and I assisted Dr. Taylor in making the post-mortem examination referred to by that gentleman; and he has most correctly stated the result. I was present during the whole time, and at the discovery of the antimony. I am of opinion that it may have been administered within a few days, or a few hours, of Mr. Cook's death. All the tests we employed failed to discover the presence of strychnia. The stomach was in a most unfavourable state for examination; it was cut open, and turned inside out; its mucous surface was lying upon the intestines, and the contents of the stomach, if there had been any, must have been thrown among the intestines, and mixed with them. These circumstances were very unfavourable to the hope of discovering strychnia. I agree with Dr. Taylor as to the manner in which strychnia acts upon the human frame, and I am of opinion that it may be taken either by accident or design sufficient to destroy life, and no trace of it be found after death. I was present at the experiments made by Dr.

Taylor upon the animals, and at the endeavour to detect it in the stomachs afterwards. We failed to do so in three cases out of four. The symptoms accompanying the deaths of the animals were very similar to those described in the case of Mr. Cook. I have heard the cases that have been mentioned in this court, and the symptoms in every one of them are analogous to those in the case of Mr. Cook.

Cross-examined by Mr. Grove, Q.C.—I did not see either of the animals reject any portion of the poison; but I have heard that in one case the animal did reject a portion. I have no facts to state upon which I formed the opinion that the poison acts by absorption.

Professor BRANDS, examined by Mr. Welsby.—I am Professor of Chemistry at the Royal Institution. I was not present at the analysis of the liver and spleen, &c., of the deceased; but the report of Dr. Taylor and Dr. Rees was sent to me for my inspection afterwards. I was present at one of the analyses. We examined, in the first place, the action of copper upon a very weak solution of antimony, and we ascertained there was no action until the solution was slightly acidified by muriatic acid, and heated. The antimony was then deposited, and I am enabled to state positively that that deposit was antimony.

By the Attorney-General.—The experiment I refer to was made for the purpose of testing the accuracy of the test that had already been applied, and it was perfectly satisfactory.

Professor CHRISTISON said—I am a fellow of the Royal College of Physicians, and Professor of Materia Medica to the University of Edinburgh. I am also the author of a work on the subject of poisons; and I have directed a good deal of attention to strychnia. In my opinion, it acts by absorption into the blood, and through that upon the nervous system. I have seen its effect on a human subject, but not a fatal case. I have seen it tried upon pigs, rabbits, cats, and one wild boar. (A laugh.) I first directed my attention to this poison in 1820, in Paris. It had been discovered two years before in Paris. In most of my experiments upon animals, I gave very small doses—a sixth of a grain; but I once administered a grain. I cannot say how small a dose would cause the death of an animal by administration into the stomach. I generally applied it by injection through an incision in the cavity of the chest. A sixth part of a grain so administered killed a dog in two minutes. I once administered to a rabbit, through the stomach, a dose of a grain. I saw Dr. Taylor administer three-quarters of a grain to a rabbit, and it was all swallowed except a very small quantity. The symptoms are nearly the same in rabbits, cats, and dogs. The first is a slight tremor and unwillingness to move; then frequently the animal jerks its head back slightly; soon after that, all the symptoms of tetanus come on which have been so often described by the previous witnesses. When the poison is administered by the stomach, death generally takes place between a period of five minutes and five-and-twenty minutes after the symptoms first make their appearance. I have frequently opened the bodies of animals thus killed, and have never been able to trace any effect of the poison upon the stomach or intestines, or upon the spinal cord or brain, that I could attribute satisfactorily to the poison. The heart of the animal generally contained blood in all the cases in which I have been concerned. In the case of the wild boar, the poison was injected into the chest. A third of a grain was all that was used, and in ten minutes the symptoms began to show themselves. If strychnia was administered in the form of a pill, it might be mixed with other ingredients that would contract the period of its operation. This would be the case if it were mixed with resinous materials, or any materials that were difficult of digestion; and such materials would be within the knowledge of any medical man, and they are frequently used for the purpose of making ordinary pills. Absorption in such a case would not commence until the pill was broken down in the process of digestion. In the present state of our knowledge of the subject, I do not

think it is possible to fix the precise time when the operation of the poison commences on a human subject. In the case of an animal, we take care that it is fasting, and we mix the poison with ingredients that are readily soluble, and every circumstance favourable for the development of the poison. I have seen many cases of tetanus arising from wounds and other causes. The general symptoms of the disorder very nearly resemble each other; and in all the natural forms of tetanus the symptoms begin and advance much more slowly, and they prove fatal much more slowly, and there is no intermissions in certain forms of natural tetanus. In tetanus from strychnia there are short intermissions. I have heard the evidence of what took place at the "Talbot Arms," on the Monday and Tuesday, and the result of my experience induces me to come to the conclusion that the symptoms exhibited by the deceased were only attributable to strychnia, or the four poisons containing it. There is no natural disease of any description that I am acquainted with to which I could refer these symptoms. In cases of tetanus, consciousness remains to the very last moment. When death takes place in a human subject by spasm it tends to empty the heart of blood. When death is the consequence of the administration of strychnia, if the quantity is small, I should not expect to find any trace in the body after death. If there was an excess of quantity more than was required to cause the death by absorption, I should expect to find that excess in the stomach. The colour-tests for the detection of the presence of strychnia are uncertain. Vegetable poisons are more difficult of detection than mineral ones; and there is one poison with which I am acquainted for which no known test has been discovered. The stomach of the deceased was sent in a very unsatisfactory state for examination; and there must have been a considerable quantity of strychnia in the stomach to have enabled any one to detect its presence under such circumstances.

Cross-examined.—The experiments I refer to were made many years ago. In one instance I tried one of the colour-tests in the case of a man who was poisoned by strychnia, but I failed to discover the presence of poison in the stomach. I tried the test for the development of the violet colour by means of sulphuric acid and oxide of lead. From my own observation I should say that animals destroyed by strychnia die of asphyxia, but in my work, which has been referred to, it will be seen that I have left the question open.

Some further questions were put to the witness by the learned counsel for the prisoner in reference to opinions expressed by him in his work, and he explained that this work was written twelve years ago, and that the experience he had since obtained had modified some of the opinions he then entertained.

Cross-examination continued.—I have not noticed that in cases where a patient is suffering from strychnia the slightest touch appears to bring on the paroxysm. It is so remarkably in the cases of animals, unless you touch them very gently indeed. Strychnia has a most intensely bitter taste. It is said on the authority of a French chemist that a grain will give a taste to more than a gallon of water. If resinous substances were used in the formation of a pill it does not follow that they would necessarily be found in the stomach; they might be passed off.

By the Attorney-General.—One of the cases referred to in the work that has been referred to was that of a gamekeeper, who was found dead; his head was thrown back, his hands were clenched, and his limbs were rigid. A paper containing strychnia was found in his pocket, and upon a post-mortem examination there were indications which, under the circumstances, satisfied him of the existence of strychnia. There was a substance in the body of an intense bitter, which was tested by the colour-test, and it succeeded in one instance but failed in another. I have no doubt that colour-tests are not to be relied on.

SIXTH DAY—TUESDAY, MAY 20TH.

JOHN JACKSON, examined by Mr. James.—I am a member of the College of Physicians. I have recently returned from India, where I have practised for twenty-five years. During that practice I have had my attention directed to cases of idiopathic and traumatic tetanus. In England idiopathic tetanus appears to be rare. In India it is comparatively frequent. The proportion of cases of idiopathic to traumatic tetanus is about one-third. I have seen not less than forty cases in the hospital at Calcutta. That disease is not considered to be so fatal as traumatic tetanus, but I have found that it is equally so. It is commonly found in children—both native and European. It takes place about the third day after birth. It will also be occasioned by cold, in the climate of India. In infants there is a more marked system of lock-jaw than in traumatic tetanus. In adults there is no difference between the symptoms of the two diseases. I have always seen idiopathic tetanus preceded by premonitory symptoms. Those are a peculiar expression of the countenance and stiffness in the muscles of the throat and of the jaw. The period which usually elapses between the attack of idiopathic tetanus and the fatal termination of the disease is in infants forty-eight hours; in adults, if the disease arises from cold, it is longer, and may continue many days, going through the same grades as the traumatic form of the disease. I have not heard the evidence of the attacks of the deceased Cook.

Cross-examined by Mr. Serjeant Shee.—In idiopathic tetanus the patient is always uncomfortable for some time before the attack. The appetite is not much affected. He complains more of the muscles of his neck. He may within twelve hours of a serious attack preserve his relish for food. I never heard a patient complain of want of appetite. I have known cases of idiopathic tetanus in which the first paroxysm occurred in bed. I have known this disease occur to women after confinement or miscarriage. Sometimes one of the premonitory symptoms is a difficulty in swallowing.

Re-examined by the Attorney-General.—In an infant, not more than six hours will elapse between the premonitory symptoms and the commencement of the tetanic paroxysm; in an adult, the interval will be from twelve to twenty-four, sometimes more than that. The interval from the commencement of the tetanic convulsions to death will vary from three days to ten days. Sometimes death may occur in two days, but that is an early termination. When the disease sets in, the course of the symptoms is alike in both forms of tetanus. Both forms are much more common in India than in England. The symptoms in India are the same as in England. I have never seen a case in which the disease ended in death in twenty minutes or half an hour.

WILLIAM BARNFORD, examined by the Attorney-General.—I am a surgeon and apothecary at Rugeley, in Staffordshire. I first saw the deceased Cook on Saturday, Nov. 17. Palmer, the prisoner, asked me to visit him. Palmer said that Cook had been dining with him the day before, and had taken too much champagne. I went with Palmer to see Cook. I asked Cook if he had taken too much wine the day before, and he assured me that he took but two glasses. I found no appearance of bile about Cook, but there was constant vomiting. I prescribed for him a saline effervescent draught, and a six-ounce mixture. I never saw Cook take any of the pills which I had prescribed. After I had prepared the pills on the Monday evening, I took them to the "Talbot Arms," and gave them to a servant-maid, who took them up-stairs. On the Saturday, Sunday, and Monday I prepared the same pills. I saw Palmer on the Tuesday morning; I was going to see Cook when he met me. I asked him if he had seen Cook the night before. He said that he saw him between nine and ten o'clock, and was with him for half an hour. He requested that I would not disturb Cook, and I went home without seeing him. Between twelve and one o'clock Palmer met me again. I was going to see Cook, and Palmer begged I would not go, because he was still and quiet, and he did not wish

him to be disturbed. At seven o'clock in the evening Palmer came to my house, and requested me to go and see Cook again. I went and saw him. Having seen Cook, I left the room with Jones and Palmer. Palmer said he rather wished Cook to have his pills again, and that he would walk up with me for them. He did so, and stood by while I prepared them in my surgery. I had strychnia in a cupboard in my own private room. I put the pills in a box, and addressed it "Night pills: John Parsons Cook, Esq." I wrote that direction on all the four nights. On the Tuesday night Palmer requested that I would put on a direction. After that I did not see Cook alive. Palmer took away the pills between seven and eight o'clock. I had wrapped the box up in paper, and had sealed it; there was no impression of a seal upon it. The direction was upon a separate paper, which I placed under the box, and between it and the outside paper. Nothing was written on the box or on the outside paper. It was as near as could be twenty minutes past twelve at midnight when I saw Cook dead. I understood he was alive when they came to me, and I could not have been more than five or ten minutes in going up. I found the body stretched out, resting on the heels and the back of the head, as straight as possible, and stiff. The arms were extended down each side of the body, and the hands were clenched. I filled up the certificate, and gave it as my opinion that he died from apoplexy. Palmer asked me to fill up the certificate. I had forms of certificates in my possession. When Palmer asked me to fill up the certificate, I told him that, as Cook was his patient, it was his place to fill up the certificate. He said he had much rather I did it, and I did so. I was present at the post-mortem examination. After it was over, Palmer said, "We ought not to have let that jar go." That was all he said.

Cross-examined by Mr. Serjeant Shee.—My house is about 200 yards from that of the prisoner.

Superintendent Berger; Mr. Deane, Solicitor to the Prince of Wales Assurance Office; Mr. Espin, Solicitor to Mr. Padwick; Mr. Strawbridge, Manager of the Bank at Rugeley; Mr. Pratt; John Wallbank; John Spillbury; and Mr. Wright, Solicitor, of Birmingham, were examined on this day. Their evidence related wholly to matters of business transactions. At the end of this day's proceedings,

Mr. Serjeant SHEE asked permission to put some further questions to Mr. Devonshire, with regard to his having been pushed by Palmer during the post-mortem examination.

Lord CAMPBELL.—By all means.

Mr. Justice CRESSWELL observed that he did not think it was a circumstance to which much importance could be attached; he had not taken a note of it.

Mr. Baron ALDERSON expressed a similar opinion. There was nothing extraordinary in a person who was interested in the examination being anxious to see all that was going on.

Mr. Serjeant SHEE, after that intimation of their lordships' opinion, would not press his request.

SEVENTH DAY—WEDNESDAY, MAY 21ST.

CHARLES WEATHERBY, examined by Mr. Welsby, proved the receipt, on Nov. 21 of a cheque for £350, professedly signed by Cook; and he testified to some instructions by Palmer as to payments of money on the 23rd, on which day it appears that the cheque was returned to Palmer unpaid, the stakes won at Shrewsbury having been, as the clerk of the course stated, paid to Cook personally. After some other evidence of little moment in this place—

Mr. Serjeant SHEE opened his address on behalf of the prisoner. He dwelt on the popular prejudices that had been excited against the latter, and asserted his own conviction of the prisoner's innocence of the crime with which he was charged. He said that no jury ought to find him guilty, unless it were proved, first, that he had

a motive in desiring the death of the deceased; secondly, that the symptoms before death, and the appearance of the body afterwards, are consistent with the theory that death had been occasioned by poison; and, thirdly, that they are inconsistent with the theory that death proceeded from natural causes. He then added—Before, however, I proceed to grapple in these close quarters with the case for the Crown, allow me to restore to its proper place in the discussion a fact which, although it was by no means concealed by my learned friend in that address by which he at once seized upon your judgment, appeared to me to be thrown too much into the shade—the fact, I mean, that strychnine was not found in the body of the unfortunate deceased. If he died of the poison of strychnine—if he died within a few hours, or within a quarter of an hour or twenty minutes of the administration of a strong dose—if the post-mortem examination took place within six days of the death, there is not the least reason to suppose that between the time of the injection of the poison and the paroxysms of death there was any dilution of it, or any ejection of it by vomiting. Never, therefore, unless chemical analysis is altogether a failure in the detection of strychnine, were circumstances more favourable for its discovery. But, beyond all question, strychnine was not found. Whatever we may think of the judgment and experience of Dr. Taylor, we have no reason to doubt that he is a very skilful chemist; we have no reason to believe—in fact, we know to the contrary—that he and Dr. Rees did not do all that the science of chemical analysis could enable men to do to detect the poison. They had a distinct intimation from the executor and near relatives of the deceased, that he, for some cause or another, had reason to suspect that poison had been administered. They undertook an analysis of the stomach, which (without now going into details upon that point) was not, on the whole, in an unfavourable condition, with a firm expectation that if it was there it would be found, and without any doubt as to the efficiency of their tests. Then, in December, they say—

“We do not find strychnine, prussic acid, or any trace of opium. From the contents having been drained away” (not drained out of the jar, you know), “it is now impossible to say whether any strychnine had or had not been given just before death, but it is quite possible for tartar emetic to destroy life if given in repeated doses; and, so far as we can at present form an opinion, in the absence of any natural cause of death, the deceased may have died from the effects of antimony, in this or some other form.”

But they afterwards attended the inquest, and having heard the evidence of Mills, of Mr. Jones of Lutterworth, and of Roberts (who spoke to the purchase of strychnine on the morning of the death), they came to the conclusion that the pills administered to Cook on the Monday and the Tuesday night, contained strychnine. Dr. Taylor came to that conclusion, notwithstanding his written opinion that Cook might have been poisoned by antimony, and notwithstanding the fact that no trace of strychnine was found in the body. I call your attention now to this circumstance in order to claim for it its proper place in the discussion. The gentlemen who have come to the conclusion that strychnine may have been in the body, although it was not found, have arrived at that conclusion from experiments of a very partial kind indeed; they contend that when strychnine has once done its fatal work, and become absorbed into the system, it ceases to be the thing it was when taken into the system; it becomes decomposed, its elements are separated from each other, and therefore are no longer capable of responding to the tests which would certainly detect its presence if undecomposed. That is their case. They account for its not being found, and for their belief that it destroyed Cook, by that hypothesis. Now it is only an hypothesis. No authority for it can be drawn from experiments, and it is supported by the opinion of no eminent toxicologists but themselves. It is only fair to them, and to Dr. Taylor in particular,

to say that Dr. Taylor does propound that theory in his book. It is, however, only a theory of his own; he does not support it by the authority of any distinguished toxicologist; and when we recollect that his knowledge of the matter—good humane man!—consists in having poisoned five rabbits twenty-five years ago, and five others since this question was raised, it cannot have much weight. But I will call before you a number of gentlemen of high eminence in their profession as analytical chemists, who will state their utter renunciation of that theory. I will call Dr. Nunneley, a fellow of the Royal College of Surgeons, and a professor of chemistry, who attended the case at Leeds, which has been described to you, and Dr. Williams, professor of materia medica at the Royal College of Surgeons in Ireland, for eighteen years surgeon to the City of Dublin Hospital. Dr. Letheby, one of the ablest and most distinguished men of science in this great city, professor of chemistry and toxicology in the Medical College of the London Hospital, and medical officer of the city of London, will tell you that he rejects the theory as a heresy unworthy the belief of scientific men. Dr. Nicholas Parker, of the College of Physicians of London, and professor of medicine, Dr. Robinson of the College of Physicians, and Mr. Rogers, professor of chemistry, concur with Dr. Letheby. Lastly I will call Mr. William Herspath, of Bristol, probably the most eminent chemical analyst in this country, who also utterly rejects the theory. All of those gentlemen contend, that if not only half a grain of strychnine, but even one-fiftieth part or less has once entered into the human frame, it can and must be discovered by the tests known to chemists. They will tell you this, not as the result of a few experiments, for ever regretted, upon five rabbits, but from a large experience as to the operation of the poison upon the inferior animals—created, as you know, for the benefit of mankind—and many of them from their experience as to its effects upon the human system. I will satisfy you from their evidence, that if you admit the correctness of the tests which were used, the only safe conclusion at which you can arrive is, that strychnine not having been found in the body, it could never have been there. They all agree, too, that no degree of putrefaction or fermentation in the human system could so decompose strychnine that it should no longer possess those qualities which cause it, in its undecomposed state, to respond to chemical tests.

Serjeant Shee next combated, at great length, the supposition that Palmer had a desire for the death of Cook, and he endeavoured to show that, on the contrary, he had the greatest possible interest in keeping him alive, as one of the persons who could chiefly extricate him from his embarrassments. He drew attention to the facts that Palmer sat up with his friend in the night, and was found sleeping in his room, and that Cook was assisting Palmer with checks and accommodation down to nearly the time of his death. He added—Palmer was a man who had a shrewd knowledge of the world, and a knowledge of his profession, and, amongst other things, of chemistry. My learned friends have put in a book which was found in his house, and amongst other notes one in which there is this, “Strychnia kills by causing tetanic fixing of the respiratory muscles.” In the same book there are many other notes.

Lord CAMPBELL—The Attorney-General stated that he did not place much reliance upon that note.

Mr. Serjeant SHEE—My learned friend did not press this note, but he thought it was evidence which ought to be before you (the jury). I use it to satisfy you that Palmer had studied his profession sufficiently to know, and knew perfectly well, that if strychnine were administered, it would in all probability kill the victim in horrible convulsions, in a very short time, and in a way so striking as to be the talk of a small neighbourhood like Rugeley for a month or more—time enough to alarm everybody and provoke inquiry into the circumstances of the death, which must certainly, in all probability, end in the detection of guilt.

Mr. Serjeant Shee alleged that Cook had been suffer.

ing for a long time from a sore throat, and bore about him all the signs and indications of having led a licentious life. When his body was opened there were evidences of a soreness of the tongue. I do not go the length of saying that there was anything to lead to the inference that there was an actual sore at the time of death, but there were follicles and symptoms, if not of a recent, certainly not of a very remote ulcer. The inside of the mouth had been ulcerated, and the skin taken off on both sides. There is abundant evidence to show that Cook was himself of opinion that these symptoms were syphilitic. He was haunted with the apprehension that some day, as he was running about the race-course, his face would be suddenly covered over with copper blotches, which would leave no doubt on the minds of those who saw them as to the true nature of his disease. It is certain that it was his own opinion that he was suffering from virulent syphilis, and in this opinion the medical men who originally attended him did not hesitate to concur. That he did not correct his habits is evident from the fact that within a recent period of his death he had again become diseased. When his body was opened on the second examination, there was found between the delicate membrane which the spinal marrow covers, and is called the arachnoid, and embedded to some extent in the next covering, not so delicate, termed the dura mater, granules about one inch in extent; and I will satisfy you, upon the evidence of witnesses whose authority will not be questioned, that if the body had been opened in the dead-house of any hospital in this metropolis, those granules would have been regarded as symptoms affording conclusive explanation of the cause of death.

The Serjeant commented on the evidence of Dr. Taylor, who had at first attributed the death to the effects of antimony, yet afterwards abandoned that notion, and declared at the inquest his belief that the pills given to Cook on the Monday and Tuesday contained strychnia, and that Cook was poisoned. He said—The Crown will have it that Cook's was the tetanus of poison, but it is almost an assumption to say that it was tetanus at all. That he died of convulsions, or immediately after them, is certain, and that they were convulsions similar to those from which he suffered on the preceding night is beyond all doubt. But what pretence is there for positively asserting that they were tetanus at all? Regard being had to the delicate state of his health, and to the continually recurring derangements of his constitution, it is far safer to conclude that he died of ordinary convulsions, than of any description of tetanus, whether traumatic, idiopathic, or that produced by poison.

The learned counsel proceeded at very great length to fortify this opinion by the evidence already given by witnesses, and by quotations from Copeland's "Dictionary of Practical Medicine;" Watson's "Lectures on Physic;" and various recorded cases of death from strychnia, including one in *THE LANCET*, in which a German, aged seventeen years, was attacked with tetanic symptoms in about a quarter of an hour after taking the poison. He impugned the evidence of Elizabeth Mills, who had witnessed the symptoms exhibited by Cook on the Monday night; and he drew particular attention to the fact that the fit of that night had not been mentioned in the consultation between Jones, Bamford, and Palmer on the Tuesday evening. He laid before the jury certain explanations of conduct and expressions on the part of Palmer towards Dr. Harland, Mr. Frere, Mr. Stevens, and others; and he again traced over circumstances mutually relating to Cook and Palmer, from Shrewsbury races to the time of Cook's death. The learned Serjeant occupied eight hours with his most able and comprehensive pleading for the defence, and no evidence was taken on this day.

EIGHTH DAY—THURSDAY, MAY 22ND.

DR. THOMAS NUNNLEY, a Fellow of the Royal College of Surgeons, and Professor of Surgery to the Leeds School

of Medicine, was examined by Mr. Grove, Q.C.—I understand that Cook had three attacks on succeeding nights, occurring about the same hour. As a medical man, I should infer from this that the attacks were of a convulsive character. I infer that in the absence of other causes to account for them. According to my personal experience and knowledge from the study of my profession, convulsive attacks are as various as possible in their forms and degrees of violence. It is not possible to give a definite name to every convulsive symptom. There are some forms of convulsion in which the patient retains his consciousness. Those are forms of hysteria, sometimes found in the male sex. I know by reading that a form of epilepsy in which the patient retains consciousness, although rarely, does sometimes occur. The degree of consciousness in epilepsy varies very much. In some attacks the consciousness is wholly lost for a long time. Convulsions arise from almost any cause—from worms in children, affections of the brain in adults, hysteria, and in some persons the taking of chloroform. Adults are sometimes attacked by such convulsions. Affections of the spinal cord or eating indigestible food will produce them. I know no instance in which convulsions have arisen from retching and vomiting. I agree with Dr. Copeland that these convulsions sometimes end immediately in death. The immediate proximate cause of death is frequently asphyxia.

By Lord CAMPBELL.—Death from a spasm of the heart is often described as death by asphyxia.

Examination continued.—I have seen convulsions recurring. I have seen that in very various cases. The time at which a patient recovers his ease after a violent attack of convulsions varies very much. It may be a few minutes, or it may be hours. From an interval between one convulsion and another I should infer that the convulsions arise from some slight irritation in the brain or the spinal cord. When death takes place in such paroxysms there is sometimes no trace of organic disease to be found by a post-mortem examination. There are three preparations in museums where granules are exhibited in the spinal cord, in which the patients are said to have died from tetanus. Those are at St. Thomas's Hospital. To ascertain the nature and effect of such granules the spinal cord ought to be examined immediately after death. Not the most remote opinion could be formed upon an examination made two months after death, more especially if the brain had been previously opened. Independently of the appearance of granules, it would not after that period be possible to form a satisfactory opinion upon the general condition of the spinal cord. If there were a large tumour, or some similar change, it might be exhibited; but neither softening nor induration of the structure could be perceived. The nervous structure changes within two days of death. To ascertain minutely its condition it is necessary to use a lens or microscope. That is required in an examination made immediately after death. The witness read a report of this examination, in which it was stated that the eyelids were partially open and the globes flaccid, and the pupils dilated. The muscles of the trunk were not in the least rigid; indeed, they were so soft that the body might be bent in any direction. The muscles at the hip and shoulder joints were not quite so flaccid, but they allowed these joints to be easily moved; while those of the head and neck, forearms, &c., were rigid. The fingers were curved, and the feet somewhat arched. All the muscles, when cut into, were found soft and dark in colour. The membranes of the liver were exceedingly vascular. The membrane of the spinal cord was much congested. There was bloody serum in the pericardium; the lungs were distended, and some of the air cells were ruptured. The lining membranes of the trachea and bronchial tubes were covered with a layer of bloody mucus of a dark-chocolate colour. The thoracic vessels and membranes were much congested, and the blood was everywhere dark and fluid. After reading this report the witness continued:—In the second case I made my examination thirty hours after death. I first saw the body about twelve hours after death. It was a woman somewhere near twenty years of age. [The witness also read the

report of the examination in this case. The appearances of the body were substantially similar to those presented in the previous case.] In two other cases I have seen a patient suffering from over-doses of strychnia. Neither of those cases was fatal. In one case I had prescribed the twelfth of a grain, and the patient took one-sixth. That was for a man of middle age. Strychnia had been given in solution. In a few minutes the symptoms appeared. They were a want of power to control the muscles, manifested by twitchings, rigidity, and cramp, more violent in the legs than in any other part of the body. The spasms were not very violent. They continued six hours before they entirely disappeared. During that time they were intermittent at various intervals. As the attack passed off the length of the intervals increased. At first their length was but a few seconds. The spasms were not combated by medical treatment. The other case was a very similar one. The quantity taken was the same—double what I had prescribed. I have experimented upon upwards of sixty animals with strychnia. In the cases where the animals live longest the paroxysms occur at the longest intervals. In all cases in the interval before death the rigidity ceases (I know no exception to this), and the muscles become quite soft, powerless, and flaccid. The limbs may be put in any position whatever. There is but little difference from ordinary cases of convulsive death in the time at which the rigor mortis comes on. I have destroyed animals with other poisons, and there is very little difference between the rigidity in their cases and that in the cases of death from strychnia. In the two women I have mentioned, the rigor mortis was much less than is usual in cases of death from natural disease. I have attended to the evidence as to the symptoms exhibited by Cook on the Sunday, Monday, and Tuesday night. The symptoms on Sunday night I assume to have been great excitement. Cook described himself as having been very ill, and in such a state that he considered himself mad for a few minutes. He stated that the cause of this was a noise in the street. These symptoms, in the three nights I have mentioned, do not resemble those which I have seen follow the administration of strychnia. Cook had more power of voluntary motion than I have observed in animals under the influence of this poison. He sat up in bed, and moved his hands about freely, swallowed, talked, and asked to be rubbed and moved, none of which, if poisoned by strychnia, could he have done. The sudden accession of the convulsions is another reason for believing that they were not produced by strychnia. Other reasons for believing that the convulsions were not produced by strychnia are their sudden accession without the usual premonitory symptoms, the length of time which had elapsed between their commencement and the taking of the pills which are supposed to have contained poison, and the screaming and vomiting. I never knew an animal which had been poisoned with strychnia to vomit or scream voluntarily. I apprehend that where there is so much spasm of the heart there must be inability to vomit. In the case related in which attempts were made to produce vomiting they did not succeed. There is such a case in the tenth volume of the *Journal de Pharmacie*, in which an emetic was given without success. The symptoms exhibited after death by animals poisoned by strychnia differ materially from those presented by the body of Cook. In his case the heart is stated to have been empty and uncontracted.

Lord CAMPBELL.—I do not remember that. I think it was said that it was contracted.

Mr. Baron ALDERSON.—According to my note, Dr. Harland said that the heart was contracted, and contained no blood.

Examination continued.—The lungs were not congested, nor was the brain. In the case of animals which have recovered, the paroxysms have subsided gradually. I never knew a severe paroxysm followed by a long interval of repose. I have experimented upon the discovery of strychnia in the bodies of animals in various stages of decomposition, from a few hours after death up to the forty-third day, in which latter case the body

was quite putrid. It has never happened to me to fail to discover poison. I have experimented in about fifteen cases.

Supposing a person to have died under the influence of strychnia poison in the first paroxysm, and his stomach to have been taken out and put into a jar on the sixth day after death, must strychnia have, by a proper analysis, been found in the body?—Yes. In this case the stomach was not, in my opinion, in an unfavourable condition for examination. The circumstances attending its position in the jar and its removal to London would give a little more trouble, but would not otherwise affect the result. If the deceased had died from strychnia poison, it ought to have been found in the liver, spleen, and kidneys. I have seen this poison found in similar portions of animals which have been killed by it. I have also seen it found in the blood; that was by Mr. Herapath, of Bristol.

Could the analyses be defeated or confused by the existence in the stomach of any other substance which would produce the same colours?—No. Supposing the pyroxanthine and salicine were in the parts examined, their existence would not defeat the analysis.

Supposing the death to have been caused by a dose of strychnia, not more than sufficient to destroy the animal, would it be so diffused by the process of absorption that you would not be able by these tests to detect it in any portion of the system?—No, I believe it would not.

Had that question occupied your attention before you were called upon to give evidence upon this trial?—It had.

What is your reason for stating that strychnine, when it has done its work, continues as strychnine in the system?—Those who say that some change takes place argue that as food undergoes a change when taken into the body, so does the poison; it becomes decomposed. But the change in food takes place during digestion; consequently its traces are not found in the blood. Substances like strychnine are absorbed without digestion, and may be obtained unchanged from the blood. They may be administered in various ways.

In your judgment, will any amount of putrefaction prevent the discovery of strychnine?—To say that it is absolutely indestructible would be absurd, but within ordinary limits, no. I have found it at the end of forty days.

What is the probable relative rapidity of the action of strychnine in an empty and a full stomach?—The emptier the stomach the quicker the action.

In his cross-examination by the Attorney-General, Mr. Nunneley answered as follows:—

Do you know any case of strychnine in which the rigidity after death was greater than the usual rigor mortis?—I think not. I don't think there is any peculiar rigidity produced by strychnine.

Have you never found undue rigidity in a human subject after death from strychnine?—Considerably less.

In the anonymous case to which we have referred, were not the hands curved and the feet arched by muscular contraction?—Not more than is usual in cases of death from ordinary causes. The limbs were rigid, but not more than usual.

In face of the medical profession, I ask you whether you signed a report stating that "the hands were curved and the feet decidedly arched by muscular contraction," and whether you meant by those words that there was no more than the ordinary rigidity of death?—Certainly; I stated so at the time.

Where? In the report?—No; in conversation. Allow me to explain that a distinction was drawn between the muscles of the different parts of the body. I heard Mr. Morley's evidence with regard to experiments on animals, and his statement that "after death there was an interval of flaccidity after which rigidity commenced, more than if it had been occasioned by the usual rigor mortis."

You don't agree with that statement?—I do not. I generally found the right side of the heart full.

Does the fact of the heart in Cook's case having been found empty lead you to the conclusion that death was not caused by strychnine?—Amongst other things it does. I heard the evidence of Dr. Watson as to the case of Agnes Sennett, in which the heart was found contracted and empty; also, that of Mr. Taylor as to the post-mortem examination of Mrs. Smyth. No doubt he stated that the heart in that case also was empty.

And do those facts exercise no influence on your judgment?—They would not unless I knew how the post-mortem examination had been made. If it was commenced at the head, the blood being fluid, the large drains would be opened, and the blood, from natural causes, would drain away.

Do you know how the post-mortem examination was made in this case?—No. Excuse me. I do. The chest and the abdomen, not the head, was first opened.

The heart, then, was not emptied in the first instance?—No.

Then what occasioned the contraction of the heart?—When the heart is emptied it is usually contracted.

But how do you account for its contraction and emptiness?—I cannot account for it.

Lord CAMPBELL.—Would the heart contract if there was blood in it?—No.

Lord CAMPBELL.—When you find the heart contracted you know then that it was contracted at the moment of death?—It is necessary to draw a distinction between the two cavities. It is very common to find the left ventricle contracted and hard, while the right is uncontracted.

Lord CAMPBELL.—That is death by asphyxia?—Precisely.

By the Attorney-General.—In Cook's case the lungs were described as not congested. Entosthema is of two kinds: one of them consists of dilatation of the cells; the other, of a rupture of the cells. When animals die from strychnine entosthema occurs. I do not know the character of the entosthema in Cook's case. It did not occur to me to have the question put to the witness who described the post-mortem examination.

To what constitutional symptoms about Cook do you ascribe the convulsions from which he died?—Not to any.

Was not the fact of his having syphilis an important ingredient in your judgment upon his case?—It was. I judge that he died from convulsions, by the combination of symptoms.

What evidence have you to suppose that he was liable to excitement and depression of spirits?—The fact that after winning the race he could not speak for three minutes.

Anything else?—Mr. Jones stated that he was subject to mental depression. Excitement will produce a state of brain which will be followed, at some distance, by convulsions. I think Mr. Bamford made a mistake when he said the brain was perfectly healthy.

Do you mean to set up that opinion against that of Mr. Devonshire and Dr. Harland, who were present at the post-mortem?—My opinion is founded in part on the evidence taken at the inquest, in part on the depositions. With the brain and the system in the condition in which Cook's were, I believe it is quite possible for convulsions to come on and destroy a person. I do not believe that he died from apoplexy. He was under the influence of morphia. I don't ascribe his death to morphia, except that it might assist in producing a convulsive attack. I should think morphia was not very good treatment, considering the state of excitement he was in.

Do you mean to say, on your oath, that you think he was in a state of excitement at Rugeley?—I wish to give my evidence honestly. Morphia, when given in an injured state of the brain, often disagrees with the patient.

But what evidence have you as to the injured state of the brain?—Sickness often indicates it. I can't say whether the attack of Sunday night was an attack of convulsions. I think that the Sunday attack was one of a similar character, but not so intense, as the attack of Tuesday, in which he died. I don't think he had convulsions on the Sunday, but he was in that condition which often precedes convulsions. I think he was mistaken when he stated that he awoke by a noise. I be-

lieve he was delirious. That is one of the symptoms on which I found my opinion. Any intestinal irritation will produce convulsions in a tetanic form. I have known instances in children. I have not seen an instance in an animal. Medical writers state that such cases do occur. I know no name for convulsions of that kind.

Have you ever known a case of convulsions of that kind terminating in death, in which the patient remained conscious to the last?—I have not. Where epilepsy terminates in death consciousness is gone. I have known four cases of traumatic, and five or six of idiopathic tetanus.

You heard Mr. Jones make this statement of the symptoms of Cook after the commencement of the paroxysms:—"After he swallowed the pills, he uttered loud screams, threw himself back in the bed, and was dreadfully convulsed. He said, 'Raise me up! I shall be suffocated.' The convulsions affected every muscle of the body, and were accompanied by stiffening of the limbs. I endeavoured to raise Cook with the assistance of Palmer, but found it quite impossible, owing to the rigidity of the limbs. When Cook found we could not raise him up, he asked me to turn him over. He was then quite sensible. I turned him on to his side. I listened to the action of his heart. I found that it gradually weakened, and asked Palmer to fetch some spirits of ammonia, to be used as a stimulant. When he returned the pulsations of the heart were gradually ceasing, and life was almost extinct. Cook died very quietly a very short time afterwards. When he threw himself back in bed he clenched his hands, and they remained clenched after death. When I was rubbing his neck, his head and neck were unnaturally bent back by the spasmodic action of the muscles. After death his body was so twisted or bowed, that if I had placed it upon the back it would have rested upon the head and the feet." Now, I ask you to distinguish in any one particular between those symptoms and the symptoms of tetanic convulsions?—It is not tetanus at all; not idiopathic tetanus.

I quite agree with you that it is not idiopathic tetanus, but point out any distinction that you can see between these symptoms and those of real tetanus.—I do not know that there is any distinction, except that in a case of tetanus I never saw rigidity continue till death and afterwards.

Can you tell me of any case of death from convulsions in which the patient was conscious to the last?—I do not know of any; convulsions occurring after poison has been taken are properly called tetanic.

We were told by Sir B. Brodie, that while the paroxysms of tetanic convulsion last, there is no difference between those which arise from strychnine and those which arise from tetanus, properly so called, but the difference was in the course the symptoms took. Now, what do you say is the difference between tetanus arising from strychnine and ordinary tetanus?—The hands are less violently contracted; the effect of the spasm is less in ordinary tetanus. The convulsion, too, never entirely passes away. I have stated that tetanus is a disease of days, strychnine of hours and minutes; that convulsive twitchings are in strychnine the first symptoms, the last in tetanus; that in tetanus the hands, feet, and legs are usually the last affected, while in strychnine they are the first. I gave that opinion after the symptoms in the case of the lady at Leeds, which were described by the witness Witham, and I still adhere to it. I never said that Cook's case was one of idiopathic tetanus. I do not think it was a case of tetanus in any sense of the word. It differed from the course of tetanus from strychnine in the particulars I have already mentioned.

Repeat them.—There was the sudden accession of the convulsions.

Sudden—after what?—After the rousing by Jones. There was also the power of talking.

Don't you know that Mrs. Smyth talked and retained her consciousness to the end; that her last words were, "Turn me over"?—She did say something of that kind. No doubt those were the words she used. I believe that in poison tetanus the symptoms are first observed in the

legs and feet. In the animals upon which I have experimented, twitching in the ears and difficulty of breathing have been the premonitory symptoms.

When Cook felt a stiffness and a difficulty of breathing, and said that he should be suffocated on the first night, what were those but premonitory symptoms?—Well, he asked to be rubbed; but, as far as my experience goes with regard to animals—

The ATTORNEY-GENERAL.—They can't ask to have their ears rubbed, of course. (A laugh.)

Mr. Serjeant SKEE said the witness was about to explain the effect of being rubbed upon the animals.

Cross-examination continued.—In no single instance could the animals bear to be touched.

Did not Mrs. Smyth ask to have her legs and arms rubbed?—In the Leeds case, the lady asked to be rubbed before the convulsions came on, but afterwards she could not bear it, and begged that she might not be touched.

Can you point out any one point, after the premonitory symptoms, in which the symptoms in this case differ from those of strychnine tetanus?—There is the power of swallowing, which is taken away by inability to move the jaw.

But have you not stated that lock-jaw is the last symptom that occurs in strychnine tetanus?—I have. I don't deny that it may be. I am speaking of the general rule. In the Leeds case, it came on very early, more than two hours before death, the paroxysms having continued about two hours and a half. In that case, we believed that the dose was four times repeated. Poison might probably be extracted by chemical process from the tissues, but I never tried it, except in one case of an animal. I am not sure whether poison was in that case given through the mouth. We killed four animals in reference to the Leeds case, and in every instance we found strychnine in the contents of the stomach. In one case, we administered it by two processes, and one failed and the other succeeded.

Re-examined.—In making reports upon such cases as that which has been referred to, we state ordinary appearances; we state the facts without anything more.

Mr. WILLIAM HERAPATH, examined by Mr. Grove, Q.C.—I am a Professor of Chemistry and Toxicology at the Bristol Medical School. I have studied chemistry for more than forty years, toxicology for thirty. I have experimented on the poison of strychnine. I have seen no case of a human subject during life, but I have examined a human body after death. In one case I examined the contents of the stomach, and I found strychnine about three days after death. There are several tests—sulphuric acid and bichromate of potash, sulphuric acid and puce-coloured oxide of lead, sulphuric acid and peroxide of lead, sulphuric acid and peroxide of manganese, &c. The lower oxides of lead would not succeed. These are all colour-tests, and produce a purple colour, passing to red. Another class of tests gives a different colour with impure, but not with pure, strychnia. The process used previous to these tests is for the purpose of producing strychnia. I obtained evidence of strychnia by the colour-tests in the case I have mentioned. I have experimented upon animals with regard to strychnine in eight or nine cases. I have analyzed the bodies in two cases, in which I destroyed the animals myself. Both of them were cats. I gave the first one grain of strychnia in a solid form. The animal took the poison at night, and I found it dead in the morning. It was dreadfully contorted and rigid, the limbs extended, the head turned round—not to the back, but to the side—the eyes protruding and staring, the iris expanded so as to be almost invisible. I found strychnine in the urine, which had been ejected, and also in the stomach, by the tests I have mentioned. I administered the same quantity of strychnine in a solid form to another cat. It remained very quiet for fifteen or sixteen minutes, but seemed a little restless in its eyes and in breathing. In thirty-five minutes it had a terrible spasm, the extremities and the head being drawn together, and the feet extended. I watched it

for three hours. The first spasm lasted a minute or two. The saliva dripped from its mouth, and it forcibly ejected its urine. It had a second spasm a few minutes afterwards. It soon recovered and remained still, with the exception of a trembling all over. It continued in that state for three hours. During nearly two hours and a half it was in a very peculiar state; it appeared to be electrified all through, blowing upon it or touching the basket in which it was placed produced a kind of electric jump like a galvanic shock. I left it in three hours, thinking it would recover, but in the morning I found it dead, in the same indurated and contorted condition as the former animal. I examined the body thirty-six hours after death, and found strychnia in the urine, in the stomach and upper intestine, in the liver, and in the blood of the heart. I have discovered strychnia in all other cases by the same tests, but I took extraordinary means to get rid of organic matter. In all cases in which strychnia has been given, I have been able to find it, and not only strychnia, but also the nux vomica from which it is taken. I have found nux vomica in a fox and in other animals. The detection of nux vomica is more complicated than that of strychnia. In one case the animal had been buried two months. I have experimented with strychnia not in a body, but mixed purposely with organic putrefying matter. I have found it in all cases, whatever was the state of decomposition of the matter.

Are you of opinion that where strychnia has been taken in a sufficient dose to poison it can and ought to be discovered?—Yes; unless the body has been completely decomposed—that is, unless decomposition has reduced it to a dry powder. I am of opinion, from the accounts given by Dr. Taylor and the other witnesses, that if it had existed in the body of Cook it ought to have been discovered. I am aware of no cause for error in the analyses, if the organic matter had been properly got rid of. The experiments I have mentioned were made in Bristol. I have made experiments in London, and found strychnia in the stomach, liver, and blood of an animal.

Cross-examined by the Attorney-General.—I don't profess to be a physiologist. I have principally experimented on the stomach until lately. I tried my chemical process on the 8th of this month, with a view to the present case. The experiment here was on a dog. I experimented on the tissues of a cat at Bristol, and of a dog in London. I found strychnia in the blood, the heart, and the urine of the cat, besides the stomach. One grain was given to the dog. It was a large dog. I have seen a cat killed with a quarter of a grain. I have said that Dr. Taylor ought to have found strychnia.

Have you not said that you had no doubt strychnia had been taken, but that Dr. Taylor had not gone the right way to find it?—I may have said so. I had a strong opinion from reading various newspaper reports,—amongst others, the *Illustrated Times*,—that strychnia had been given. I have expressed that opinion, no doubt, freely. People have talked a great deal to me about the matter, and I cannot recollect every word I have said, but that was my general opinion.

Re-examined by Mr. Grove.—What is the smallest quantity of strychnia that your process is capable of detecting?—I am perfectly sure I could detect the 50,000th part of a grain if it was unmixed with organic matter. If I put ten grains in a gallon, or 70,000 grains of water, I could discover its presence in the tenth part of a grain of that water. It is more difficult to detect when mixed with organic matter. If a person had taken a grain, a very small quantity would be found in the heart, but no doubt it could be found. I made four experiments with a large dog, to which I had given the eighth part of a grain. I have discovered it by change of colour in the thirty-second part of the liver of a dog.

Mr. Grove said he believed his lordship was of opinion that experiments could not be shown.

Lord CAMPBELL.—We have intimated that that is our clear opinion.

Mr. ROGERS, examined by Mr. Gray.—I am Professor

of Chemistry at St. George's School of Medicine, in London. I have made experiments upon one animal (a dog) poisoned by strychnia. The experiments commenced at the close of last December, and ended about ten days since. I gave it two grains of pure strychnia in meat. Three days after death I removed the stomach and contents, and some of the blood. The blood became putrid in about ten days, and I then analyzed it with a view to find strychnine. I separated the strychnine by colour-tests. I cannot say how much it was by weight. In a month or five weeks, when the matter had putrefied, I analyzed the stomach and its contents. I treated it with acidulated distilled water, and succeeded in discovering strychnia in large quantities about ten days ago. I never analyzed a human subject with a view to find strychnia, but I have many times done so to find other poisons. Strychnia must unquestionably have been discovered in this case if it had been present and the proper tests had been used.

Cross-examined by the Attorney-General.—I have only made one experiment. If the contents of the stomach were lost it would make a difference, but not if they were only shaken up. The operation would then be more difficult. I am a medical man. I did not analyze the tissues of the body of the dog. If I had tried the tissues of Cook's body it might have been found if it was there, notwithstanding the time that had elapsed since he died. I don't say that the time would prevent its discovery if there.

Re-examined by Mr. Gray.—If strychnia were in the stomach a portion would probably be smeared over the mucous membrane, and then I should expect to find it on the surface.

Dr. HENRY LETHBRIDGE, examined by Mr. Kenealy.—I am a Bachelor of Medicine, Professor of Chemistry and Toxicology in the London Hospital of Medicine, and Medical Officer of Health to the City of London. I have been engaged for a considerable time in the study of poisons, and their action on the living animal economy. I have also been frequently engaged on behalf of the Crown in prosecutions in cases of this nature during the last fourteen years. I have been present during the examination of the medical witnesses, and have attended to the evidence as to the symptoms which have been described as attending the death of Cook. I have witnessed many cases of animals poisoned by strychnine, and many cases of poisoning by nux vomica in the human body, one of which was fatal. The symptoms described in this case do not accord with the symptoms I have witnessed in the case of those animals. They differ in this respect: In the first place, I never witnessed the long interval between the administration of the poison and the commencement of the symptoms which is said to have elapsed in this case. The longest interval I have known has been three-quarters of an hour, and then the poison was administered under the most disadvantageous circumstances. It was given on a very full stomach, and in a form uneasy of solution. I have seen the symptoms begin in five minutes. The average time in which they begin is a quarter of an hour. In all cases I have seen the system has been in that irritable state that the slightest excitement, such as an effort to move, a touch, a noise, a breath of air, would send the patient off in convulsions. It is not at all probable that a person, after taking strychnine, could pull a bell violently. Any movement would excite the nervous system, and bring on spasms. It is not likely that a person in that state could bear to have his neck rubbed. When a case of strychnia does not end fatally, the first paroxysm is succeeded by others, gradually shaded off, the paroxysms becoming less violent every time, and I agree with Dr. Christison that they would subside in twelve or sixteen hours. I have no hesitation in saying that strychnine is, of all poisons, either mineral or vegetable, the most easy of detection. I have detected it in the stomachs of animals in numerous instances, also in the blood and in the tissues. The longest period after death in which I have detected it is about a month. The animal was then in a state of decomposition. I have detected very minute

portions of strychnia. When it is pure, the 20,000th part of a grain can be detected. I can detect the tenth part of a grain most easily in a pint of any liquid, whether pure or putrid. I gave one animal half a grain, and I have the strychnia here now within a very small trifle. I never failed to detect strychnine where it had been administered. I have made post-mortem examinations on various animals killed by it. I have always found the right side of the heart full. The reason is, that the death takes place from the fixing of the muscles of the chest by spasms, so that the blood is unable to pass through the lungs, and the heart cannot relieve itself from the blood flowing to it, but therefore becomes gorged. The lungs are congested, and filled with blood. I have administered strychnia in a liquid and a solid form; I agree with Dr. Taylor, that it may kill in six or seven minutes when taken in a solid state, in the form of a pill or a bolus. I also agree with him that the first symptom is that the animal falls on its side, the jaws are spasmodically closed, and the slightest touch produces another paroxysm. But I do not agree with him that the colouring-tests are fallacious. I do not agree with him that it is changed when it is absorbed into the blood, but I agree with its absorption. I think it is not changed when the body is decomposed. The shaking about of the contents of the stomach with the intestines in a jar, would not prevent the discovery of strychnia if it had been administered. Even if the contents of the stomach were lost, the mucous membrane would, in the ordinary course of things, exhibit traces of strychnia. I have studied the poison of antimony. If a quantity had been introduced into brandy-and-water, and swallowed at a gulp, the effect would not be to burn the throat. Antimony does not possess any such quality as that of immediate burning. I have turned my attention to the subject of poison for seventeen or eighteen years.

Cross-examined by the Attorney-General.—I am not a member of the College of Physicians or of Surgeons. I do not now practise. I have been in general practice for two or three years. I gave evidence in the last case of this sort, tried in this court in 1851. I gave evidence of the presence of arsenic. The woman was convicted. I stated that it had been administered within four hours of death. I was the cause of her being respited, and the sentence was not carried into effect, in consequence of a letter I wrote to the Home-office. Other scientific gentlemen interfered, and challenged the soundness of my conclusions before I wrote that letter. I have not since been employed by the Crown.

By Mr. Justice Cresswell.—I was present at the trial. I perfectly remember it.

Cross-examination continued.—I detected the poison. I said in my letter that I could not speak as to possibilities. I have experimented on animals for a great number of years. On five recently. I have never given more than a grain, and it has always been in a solid form—in pills or bread. In the case where poison was administered under disadvantageous circumstances it was kneaded up into a hard mass of bread.

Mr. Baron ALDERSON.—Did the animal bolt it or bite it?—I opened the mouth and put it into the throat. About half an hour elapsed before the symptoms appeared in one case in which half a grain had been given. In another case death took place within thirteen minutes. I have noticed twitching of the ears, difficulty of breathing, and other premonitory symptoms. There are little variations in the order in which these symptoms occur. I have known frequent instances in which an animal has died in the first paroxysm. I heard the evidence of Mrs. Smyth's death, and I was surprised at her having got out of bed when the servant answered the bell. It is not consistent with the cases I have seen. The fact does not shake my opinion. I have no doubt that Mrs. Smyth died from strychnine. Cook's sitting up in bed and asking Jones to ring the bell is inconsistent with what I have observed in strychnine cases.

If a man's breath is hurried, is it not natural for him to sit up!—It is. I have seen cases of recovery of human subjects after taking strychnine. There is a great

uniformity in its effects—that is, in their main features, but there is a small variation as to the time in which they are produced.

What do you attribute Cook's death to?—It is irreconcilable with everything with which I am acquainted.

Is it reconcilable with any known disease you ever saw or heard of?—No.

Re-examined by Mr. Serjeant Shea.—We are learning new facts every day, and I do not at present conceive it to be impossible that some peculiarity of the spinal cord, unrecognisable at the examination after death, may have produced symptoms like those which have been described. I, of course, include strychnia in my answer, but it is irreconcilable with everything I have seen or heard of. It is as irreconcilable with strychnia as with everything else; it is irreconcilable with every disease that I am acquainted with, natural or artificial. Touching an animal during the premonitory symptoms will bring on a paroxysm. Vomiting is inconsistent with strychnia. The Romsey case was an exceptional one, from the quantity of the dose. The ringing of the bell would have produced a paroxysm. I am still of opinion that the evidence I gave on the trial in 1851 is correct. I am not aware that there is any ground for an imputation upon me in respect of that evidence. I have no reason to think Government was dissatisfied with me. I have been since employed in Crown prosecutions. After that case Dr. Pereira came to my laboratory and asked me, as an act of mercy, to write a letter to him to show to the Home-office, admitting the possibility of the poison which I found in the stomach having been administered longer than four hours before death. I wrote the letter, drawing a distinction between what was possible and probable, and the woman was transported for life.

Mr. R. E. GAY, examined by Mr. Serjeant Shea.—I am a member of the Royal College of Surgeons. I attended a person named Forster for tetanus in October, 1855. He had sore-throat, muscular pains in the neck, and in the upper portion of the cervical vertebra. He was feverish, and had symptoms ordinarily attending catarrh. I put him under the usual treatment for catarrh, and used embrocations externally to the muscles of the neck and throat, and also gargles. About the fourth day of my attendance, the muscular pains extended to the face, difficulty of swallowing came on, the pains in the cervical vertebrae increased, also those of the muscles of the face, particularly the lower jaw. In the evening of the same day, the jaw became completely locked, the pains came on in the muscles of the bowels, the legs, and the arms. He became very much convulsed throughout the entire muscular system, had frequent involuntary contractions of the arms, and hands, and legs, his difficulty of swallowing increased, and not a particle of food, solid or liquid, could be introduced into the mouth. Attempting to swallow the smallest portions brought on violent convulsions; so strong were they throughout the system, that I could compare him to nothing but a piece of warped board. The head was thrown back, the abdomen thrust forward, and the legs frequently drawn up and contracted; the attempt to feed him with a spoon, the opening of a window, or placing the fingers on the pulse, brought on violent convulsions. While the patient was suffering in this manner, he continually complained of great hunger, and repeatedly exclaimed that he was hungry, and could not eat. He was kept alive to the fourteenth day entirely by injections of a milky and farinaceous character. He screamed repeatedly, and the noises that he made were more like those of a wild man than anything else. On the twelfth day, he became insensible, and continued in that state until he died, which was in the fourteenth day from the commencement of the attack of lock-jaw. The man was an omnibus driver, and when I first attended him he had been suffering from sore-throat for several days. There was no hurt or injury of any kind about his person that would account for the symptoms I have mentioned. His body was not opened after death, because it was considered unnecessary. I consider his disease was inflammatory

sore-throat from cold and exposure to the weather, and that the disease assumed a tetanic form on account of the patient being a very nervous, excited, and anxious person. His condition in life was that of an omnibus conductor. He was a hard-working man, and had a large family dependent upon him, and this, no doubt, acting upon his peculiar temperament, tended to produce the tetanic symptoms. The witness, in conclusion, said he had not heard all the evidence in this case, but he thought it right to communicate to the prisoner's solicitor the particulars of the case to which he had now referred, as he considered it had an important bearing upon the charge against the prisoner.

Cross-examined by the Attorney-General.—The case I have mentioned was undoubtedly one of idiopathic tetanus. It is the only one of the kind I ever had to deal with. It arose from exposure to cold acting upon a nervous and irritable temperament. I have a good many patients who are nervous and irritable, but I never met with such another case. The disease was altogether progressive from the first onset, and, although for a short time there was a remission of the symptoms, they invariably recurred. The locking of the jaw was one of the very first symptoms that made their appearance.

NINTH DAY—FRIDAY, MAY 23RD.

The following evidence was given for the defence:—

Mr. J. B. ROSS said—I am house-surgeon to the London Hospital. I remember a case of tetanus being brought to that institution in March last. The patient was brought to the hospital at about half-past seven in the evening. He was a man aged thirty-seven. He had had one paroxysm in the receiving-room before I saw him, and I found him with a rapid, feeble pulse. His jaws were closed and fixed, and there was an expression of anxiety about the countenance; the features were sunken, and he was unable to swallow. The muscles of the abdomen and back were somewhat tense. After he had been in the ward about ten minutes, he had another attack, and his body became arched, and he continued a short time in that state. He was then quiet for a few minutes, when he had another attack and died. The whole period of the attack in the hospital was only half an hour. There was an inquest, and the body was examined. No poison was found; but there were three wounds on the body—two on the back of the right elbow, of the size of a shilling, and one on the left elbow of the size of a sixpence. The patient told me that he had had these wounds for twelve or sixteen years. They were old chronic indurated ulcers, circular in outline, and with the edges thickened and undermined, and covered with a white coating, and without any granulation. I am unable to say what could have produced the wounds, or what was their origin; but I have seen old syphilitic wounds on the legs similar to them. The wounds I have mentioned were the only cause I could trace for this attack of tetanus.

By the Attorney-General.—I was informed by the wife of the patient that something had been applied to these wounds a day or two before the patient was brought to the hospital, and that she objected to the poultice that was applied. It was a linseed-meal poultice that was applied to the sores. The jaws were entirely fixed when I first saw him, and he was utterly unable to swallow. He told me he was first attacked about eleven o'clock in the morning. There were symptoms of rigidity about the abdominal and lumbar muscles. He did not tell me how long he had felt these sensations. Another medical man, the parish surgeon, was said to have seen him on the same day, so that he had no doubt suffered uneasiness for some time before. I have no doubt that the disease had been coming on from the morning to the time I saw him. There were no signs of healing in the wounds, and they presented

the appearance of old neglected sores, and were very near the ulnar nerve. That is a very sensitive nerve.

The ATTORNEY-GENERAL.—It is connected with what we call the "funny-bone," I believe!—It is.

Cross-examination continued.—I heard that he had been in paroxysms all the afternoon. There were no convulsions of the legs and arms. The symptoms from which I infer that the deceased died of tetanus were, the tetanic spasms, the lock-jaw, the rigidity of the muscles of the back and abdomen, and the continued pain in the stomach. I did not hear the symptoms of the death of Mr. Cook.

By Mr. Grove.—The existence of strychnia was suspected in this case.

By the Attorney-General.—The irritation of the ulnar nerve was very likely to be the occasion of tetanus.

By Mr. Grove.—The nerves of the tongue and throat are also very delicate, as well as those of the fauces. I heard the case of tetanus described by Mr. Gay. That was occasioned by exposure to the cold, and was consequently idiopathic. An injury to any delicate nerve would decidedly be likely to cause tetanus.

Mr. RYNERS MANTELL, examined by Mr. Gray.—I am a house-surgeon at the London Hospital. I saw the case mentioned by Mr. Ross, and his statement with respect to the symptoms is correct. In my judgment, the disease of which the patient died was tetanus, produced by the sores on the arms.

Dr. WRIGHTSON, examined by Mr. Kenealy.—I was a pupil of Liebig at Giessen. I am a teacher of chemistry in a school in Birmingham. I have studied the nature and acquired a knowledge of poisons, and I have been engaged by the Crown in the detection of poison in a prosecution. I have experimented upon strychnia. I have found no extraordinary difficulties in the detection of strychnia. It is certainly to be detected by the usual tests. I have tested and discovered it both pure and mixed with impure matter after decomposition has set in. I have detected it in a mixture of bile, bilious matter, and putrefying blood. Strychnia can be discovered in the tissues. I have discovered it in the viscera of a cat, in the blood of one dog and in the urine of another dog, both of them having been poisoned by strychnia. I am of opinion that strychnia does not undergo decomposition in the act of poisoning, or in entering into the circulation. If it underwent such a change, if it were decomposed, I should say it would not be possible to discover it in the tissues; it might possibly be changed into a substance, in which, however, it would still be detectable. It can be discovered in extremely minute quantities indeed. When I detected it in the blood of a dog I had given the animal two grains. To the second dog I gave one grain, and I detected it in the urine. Half a grain was intended to be administered to the cat, but a considerable portion of it was lost. Assuming that a man was poisoned by strychnine, and if his stomach was sent to me for analysis within five or six days after death, I have no doubt that I should find it, generally. If a man had been poisoned by strychnine, I should certainly expect to detect it.

Cross-examined by the ATTORNEY-GENERAL.—Supposing that the whole dose were absorbed into the system, where would you expect to find it?—In the blood.

Does it pass from the blood into the solids of the body. In the progress towards its final destination, the destruction of life, it passes from the blood, or is left by the blood in the solid tissues of the body.

If it be present in the stomach, you find it in the stomach; if it be present in the blood, you find it in the blood; if it be left in the blood in the tissues, you find it in the tissues!—Precisely so.

Suppose the whole had been absorbed!—Then I would not undertake to find it.

Suppose the whole had been eliminated from the blood, and had passed into the urine, should you expect to find any in the blood!—Certainly not.

Suppose that the minimum dose which will destroy life had been taken, and absorbed into the circulation, then deposited in the tissues, and then a part of it eli-

minated by the action of the kidneys, where should you search for it?—In the blood, in the tissues, and in the ejections; and I would undertake to discover it in each of them.

Re-examined by Mr. Serjeant SHRE.—Suppose you knew a man to have been killed by strychnia administered to him an hour and a half before he died, in your judgment would that strychnia certainly be detected in the stomach in the first instance!—Yes.

Suppose it to have been administered in the shape of pills, and completely absorbed and got out of the stomach, would it still be found!—I can't tell. If it were found, it would be in the liver and kidneys.

Could it be detected under these circumstances in the coats of the stomach!—Not knowing the dose administered and the power of absorption, I cannot say that it could certainly be detected, but probably it could.

When death has taken place after one paroxysm, and an hour and a half after ingestion of the poison, can you form an opinion as to whether the dose was considerable or inconsiderable!—I cannot.

Mr. Baron ALDERSON.—How do you suppose strychnine acts when taken into the stomach!—I cannot form an opinion.

Mr. Baron ALDERSON.—It goes, I suppose, from the stomach to the blood, and from the blood somewhere else, and arriving at that somewhere else, it kills.

Lord CAMPBELL.—I cannot allow this witness to leave the box without expressing my high approbation of the manner in which he has given his evidence.

Mr. Serjeant SHRE requested to be allowed to ask the witness whether a strong dose was likely to pass through all the stages his lordship had mentioned.

Mr. Baron ALDERSON.—That depends on where the killing takes place.

Professor PARTEDGER, examined by Mr. Grove.—I have been many years in extensive practice as a surgeon, and I am a Professor of Anatomy in King's College. I have heard the evidence as to Cook's symptoms and post-mortem examination. I have heard the statements as to the granules that were found on his spine. They would be likely to cause inflammation, and no doubt that inflammation would have been discovered if the spinal cord or its membranes had been examined shortly after death. It would not be likely to be discovered if the spinal cord was not examined until nine weeks after death. I have not seen cases in which this inflammation has produced tetanic form of convulsions, but such cases are on record. It sometimes does, and sometimes does not, produce convulsions and death.

Can you form any judgment as to the cause of death in Cook's case!—I cannot. No conclusions or inference can be drawn from the degree or kind of contractions of the body after death.

Lord CAMPBELL.—Can you not say from the symptoms you heard whether death was produced by tetanus, without saying what was the cause of tetanus! Hypothetically I should infer that he died of the form of tetanus which convulses the muscles. Great varieties of rigidity arise after death from natural causes. The half-bent hands and fingers are not uncommon after natural death. The arching of the feet in this case seemed to me rather greater than usual.

Cross-examined by the Attorney-General.—Granules are sometimes, but not commonly, found about the spine of a healthy subject, not on the cord itself; they may exist consistently with health. No satisfactory cases of the inflammation I have described have come under my notice without producing convulsions. It is a very rare disease. I cannot state, from the recorded cases, the course of the symptoms of that disease. It varies in duration, sometimes lasting for days, sometimes much longer. If the patient lives it is accompanied by paralysis. It produces no effect on the brain which is recognisable after death. It would not affect the brain prior to death. I do not know whether it is attended with loss of sensibility before death. The size of the granules which will produce it varies. The disease is not a matter of months, unless it terminates in palsy. I

never heard of a case in which the patient died after a single convulsion. Between the intervals of the convulsions I don't believe a man could have twenty-four hours' repose. Pain and spasms would accompany the convulsions. I cannot form a judgment as to whether the general health would be affected in the intervals between them.

You have heard it stated that from the midnight of Monday till Tuesday Cook had complete repose. Now, I ask you, in the face of the medical profession, whether you think the symptoms which have been described proceeded from that disease?—I should think not.

Did you ever know the hands completely clenched after death except in cases of tetanus?—No.

Have you ever known it even in idiopathic or traumatic tetanus?—I have never seen idiopathic tetanus. I have seen the hands completely clenched in traumatic tetanus. A great deal of force is often required to separate them.

Have you ever known the feet so distorted as to assume the form of a club-foot?—No.

You heard Mr. Jones state that if he turned the body upon the back it would have rested on the head and the heels. Have you any doubt that that is an indication of death from tetanus?—No; it is a form of tetanic spasm. I am only acquainted with tetanus resulting from strychnine by reading. Some of the symptoms in Cook's case are consistent, some are inconsistent, with strychnine tetanus. The first inconsistent symptom is the intervals that occurred between the taking of the supposed poison and the attacks.

Are not symptoms of bending of the body, difficulty of respiration, convulsions in the throat, legs, and arms perfectly consistent with what you know of the symptoms of death from strychnine?—Perfectly consistent. I have known cases of traumatic tetanus. The symptoms in those cases have been occasionally remitted, never wholly terminated. I never knew traumatic tetanus run its course to death in less than three or four days. I never knew a complete case of the operation of strychnine upon a human subject.

Bearing in mind the distinction between traumatic and idiopathic tetanus, did you ever know of such a death as that of Cook according to the symptoms you have heard described?—No.

Re-examined by Mr. Grove.—Besides the symptoms which I have mentioned as being inconsistent with the theory of death by strychnine, there are others—namely, sickness, beating of the bed-clothes, want of sensitiveness to external impressions, and sudden cessation of the convulsions, and apparent complete recovery. There was apparently an absence of the usual muscular agitation. Symptoms of convulsive character arising from an injury to the spine vary considerably in their degrees of violence, in their periods of intermissions, and in the muscles which are attacked. Intermission of the disease occurs, but is not frequent, in traumatic tetanus. I do not remember that death has ever taken place in fifteen hours. It may take place in forty-eight hours during convulsions. Granules about the spine are more unusual in young people than in old. I do not know of any case in which the spine can preserve its integrity, so as to be properly examined, for a period of nine weeks. I should not feel justified in inferring that there was no disease from not finding any at the end of that time. The period of decomposition varies from a few hours to a few days. It is not in the least probable that it could be delayed for nine weeks.

By the Attorney-General.—Supposing the stomach were acted on by other causes, I do not think sickness would be inconsistent with tetanus.

JOHN GAY, examined by Mr. Gray.—I am a fellow of the Royal College of Surgeons, and I have been a surgeon to the Royal Free Hospital. A case of traumatic tetanus in a boy came under my observation in that hospital in 1843. The patient was brought in during the time he was ill. He was brought on the 28th of July, and died on the 2nd of August. He had met with an accident a week before. During the first three days

he had paroxysms of unusual severity. His mother complained that he could not open his mouth, and he complained of stiff-neck. During the night he started up and was convulsed. On the following night he was again convulsed. At times the abdominal muscles, as well as those of the legs and back, were rigid; the muscles of the face were also in a state of great contraction. On the following (the third) day he was in the same state. At two o'clock there was much less rigidity of the muscles, especially those of the abdomen and back. On the following morning the muscular rigidity was gone; he opened his mouth, and was able to talk; he was thoroughly relieved. He had no return of spasms till half-past five the following day. He then asked the nurse to change his linen, and as she lifted him up in the bed to do so violent convulsions of the arms and face came on, and he died in a few minutes. About thirty hours elapsed between the preceding convulsion and the one which terminated his life. Before the paroxysm came on the rigidity had been completely relaxed. I had given the patient tartar emetic (containing antimony) in order to produce vomiting on the second day; it produced no effect. I gave a larger dose on the third day, which also produced no effect. I gave no more after the third day.

Cross-examined by the Attorney-General.—The accident which had happened to him was that a large stone had fallen upon the middle toe of the left foot, and completely smashed it. The wound had become very unhealthy. I amputated the toe. The mouth was almost closed up when I first saw him. The jaw remained closed until the first of August, but I could manage to get a small quantity of tartar emetic into the mouth. The convulsions were intermitted during the day, but the muscles of the body, chest, abdomen, back, and neck were all rigid, and continued so for the two days on which I administered tartar emetic. Rigidity of the muscles of the chest and stomach would no doubt go far to prevent vomiting. The symptoms began to abate on the morning of the 1st of August, (the fourth day,) and gradually subsided until the rigidity entirely wore off. I then thought he was going to get well. The wound might have been rubbed against the bed when he was raised, but I don't think it probable. Some peculiar irritation of the nerves would give rise to the affection of the spinal cord. No doubt the death took place in consequence of something produced by the injury to the toe.

Re-examined by Mr. Gray.—There may be various causes for that irritation of the spinal cord which ends in tetanic convulsions. It would be very difficult merely from seeing symptoms of tetanus, and in the absence of all knowledge as to how it had been occasioned, to ascribe it to any particular cause.

Dr. W. MACDONALD, examined by Mr. Kenealy.—I am a licentiate of the Royal College of Surgeons of Edinburgh. I have been in practice for fourteen years, and have had considerable experience, practical and theoretical, of idiopathic and traumatic tetanus. I have seen two cases of idiopathic tetanus, and have made that disease the subject of medical research. Tetanus will proceed from very slight causes. An alteration of the secretions of the body, exposure to cold or damp, or mental excitement, would cause it. Sensual excitement would produce it. The presence of gritty granules in the spine or brain might produce tetanic convulsions. I have seen cases in which small gritty tubercles in the brain were the only assignable cause of death, which had resulted from convulsions. I believe that, in addition to the slight causes which I have named, tetanic convulsions result from causes as yet undiscoverable by human science. In many post-mortem examinations of the bodies of persons who had died from tetanus, no trace of any disease could be discovered beyond congestion or vascularity of some of the vessels surrounding the nerves. Strychnia, however, is very easily discoverable by a scientific man. I remember the case of a woman, Catherine Watson, who is now present, and who was attacked with idiopathic tetanus on the 20th of October, 1855.

[The witness read a report of the circumstances attending this case, the subject of which was a young woman, twenty-two years of age, who, after going about her ordinary occupation during the day, was attacked with tetanus at ten o'clock at night. By the administration of chloroform the violence of the spasms was gradually diminished, and she recovered. After her recovery, she slept for thirty-six hours.] In that case there was lock-jaw, which set in about the middle of the attack. It is generally a late symptom. I had a patient named Coupland, who died of tetanus. It must have been idiopathic, as there was no external cause. The patient died in somewhat less than half an hour, before I could reach the house. I have made a number of experiments upon animals with reference to strychnia poison. I have found the post-mortem appearances very generally to concur. The vessels of the membranes of the brain have generally been highly congested. The sinuses gorged with blood. In one case, there was hemorrhage from the nostrils. That was a case of very high congestion. In some cases, there has been an extravasation of blood at the base of the brain. I have cut through the substance of the brain, and have found in it numerous red points. The lungs have been either collapsed or congested. The heart has invariably been filled with blood on the right side, and very often on the left side also. The liver has been congested, the kidneys and spleen generally healthy. The vessels of the stomach on the outer surface have been congested, and on the mucous or inner surface highly vascular. The vessels of the membranes of the spinal cord have been congested, and sometimes red points have been displayed on cutting it through. From a post-mortem examination, you may generally judge of the cause of death. I have in a great many cases experimented for the discovery of strychnia. You may discover in the stomach the smallest dose that will kill. If you kill with a grain, you may discover traces of it. By traces, I mean evidences of its presence. You can discover the fifty-thousandth part of a grain. I have actually experimented so as to discover that quantity. The decomposition of strychnia is a theory which no scientific man of eminence has ever before propounded. I first heard of that theory in this court. In my opinion, there is no well-grounded reason whatever for it. I have disproved the theory by numerous experiments. I have taken the blood of an animal poisoned by two grains of strychnia, about the least quantity which would destroy life, and have injected it into the abdominal cavities of smaller animals, and have destroyed them, with all the symptoms and post-mortem appearances of poisoning by strychnia. Strychnia being administered in pills would not affect its detection. If the pills were hard, they would keep it together, and you might find its remains more easily. I do not agree with Dr. Taylor that colour-tests are fallacious. I believe that such tests are a reliable mode of ascertaining the presence of strychnia. I have invariably found strychnia in the urine which has been ejected. Strychnia cannot be confounded with pyrooxanthine. After strychnia has been administered, there is an increased flow of saliva. In my experiments that has been a very marked symptom. Animals to which strychnia had been given have always been very susceptible to touch. The stamp of a foot or a sharp word would throw them into convulsions. Even before the paroxysms commenced, touching them would be likely to throw them into tonic convulsions.

LORD CAMPBELL.—As soon as the poison is swallowed?—No; it would be after a certain time. The first symptoms of poisoning must have been developed.

Examination continued.—I do not think rubbing them would give them relief. I think it extremely improbable that a man who had taken a dose of strychnia sufficient to destroy life, could, after the symptoms had made their appearance, pull a bell violently. I have attended to the evidence as to Cook's symptoms. To the symptoms I attach little importance as a means of diagnosis, because you may have the same symptoms developed by many different causes. A dose of strychnia sufficient to destroy life would hardly require an hour and a half

for its absorption. I think that death was in this case caused by epileptic convulsions, with tetanic complications. I form that opinion from the post-mortem appearances being so different from those that I have described as attending poisoning with strychnia, and from the supposition that a dose of strychnia sufficient to destroy life in one paroxysm could not, so far as I am aware, have required even an hour for its absorption before the commencement of the attack. If the attack were of an epileptic character, the interval between the attacks of Monday and Tuesday would be natural, as epileptic seizures very often recur at about the same hours of successive days.

Assuming that a man was in so excited a state of mind that he was silent for two or three minutes after his horse had won a race, that he exposed himself to cold and damp, excited his brain by drink, and was attacked by violent vomiting, and that after his death deposits of gritty granules were found in the neighbourhood of the spinal cord, would these causes be likely to produce such a death as that of Cook?—Any one of these causes would assist in the production of such a death.

As a congeries would they be still more likely to produce it?—Yes.

Cross-examined by the Attorney-General.—I am a general practitioner, and am parochial medical officer. I have had personal experience of two cases of idiopathic tetanus. What I have said about mental and sensual excitement, and so on, has not come within my own observation. In the case of Catherine Watson I saw the patient at about half-past ten at night. She had been ill nearly an hour, and had five or six spasms. She had gone about her usual duties up to evening. She felt a slight lassitude for two days previous to the attack. It was only by close pressing that I ascertained that lock-jaw came on about an hour or two after I was called in. The case of Coupland was that of a young child between three and four years old. I was attending the mother, and saw the child in good health half an hour before it came on. It was seized with spasm, what I conjectured to be of the diaphragm, and died in about half an hour. I had seen the child asleep, but I did not examine it. I don't know whether I saw the face of the child, but it was in bed; I judged that it was asleep.

Is that the same as seeing it asleep?—Sometimes a medical man can form a better judgment than a lawyer. Mr. Smith applied to me to be a witness in this case. I communicated to him the case of Catherine Watson, as resembling the case of Cook. I furnished my notes to be copied the night before last. I have been here since the commencement of the trial. I have been at all the consultations. I began the experiments for this case in January. I had made experiments before. That was eight or ten years ago. I then found out that strychnia could be discovered by chemical and physiological tests. I killed dogs, cats, rabbits, and fowls. The doses I administered were from three quarters up to two grains. To dogs the smallest quantity administered was a grain. In four cases I killed with one grain, five with a grain and a half, one with a grain and a quarter, and two with two grains. I never killed a dog with half a grain of strychnia, and therefore never experimented to find that quantity after death. I have always found the brain and heart highly congested. The immediate cause of the fullness of the heart is that the spasm drives the blood from the small capillaries into the large vessels. The spasm of the respiratory muscles prevents the expansion of the lungs. The congestion of the brain is greatest when the animal is young and in full health. It does not depend upon the frequency of the spasm. I have seen cases of traumatic tetanus. I have had two in my own practice. One lasted five or six days, the other six or seven days, and the patient recovered. I have never seen a case of strychnia in the human subject. So far as I can judge, Cook's was a case of epileptic convulsions with tetanic complications. Nobody can say from what epilepsy proceeds. I have not arrived at any opinion on the subject. I have seen one death from epilepsy. The patient was not conscious

when he died. I cannot mention a case in which a patient dying from epilepsy has preserved his consciousness to the time of death.

You have been reading up this subject!—I am pretty well up in most branches of medicine. (A laugh.) I know of no case in which a patient dying of epilepsy has been conscious. My opinion is, that Cook died of epileptic convulsions with tetanic complications.

By Lord Campbell.—That is a disease well known to physicians. It is mentioned in Dr. Copeland's Dictionary. Examination continued.—I believe that all convulsive diseases, including the epileptic forms and the various tetanic complications, arise from the decomposition of the blood acting upon the nerves. Any mental excitement might have caused Cook's attack. Cook was excited at Shrewsbury, and wherever there is excitement there is consequent depression. I think Cook was afterwards depressed. When a man is lying in bed and vomiting, he must be depressed.

This gentleman was much overjoyed at his horse winning, and you think he vomited in consequence!—It might predispose him to vomit.

I am not speaking of "mights." Do you think that the excitement of the three minutes on the course at Shrewsbury on the Tuesday accounts for the vomiting on the Wednesday night!—I do not. I find no symptoms of excitement or depression reported between that time and the time of his death. The white spots found in the stomach of the deceased might, by producing an inflammatory condition of the stomach, have brought on the convulsions which caused death.

The ATTORNEY-GENERAL.—But the gentlemen who made the post-mortem examination say that the stomach was not inflamed.

Witness.—There were white spots, which cannot exist without inflammation; there must have been inflammation.

The ATTORNEY-GENERAL.—But these gentlemen say that there was not.

Witness.—I do not believe them. (A laugh.) Sexual excitement might cause epileptic convulsions, with tetanic complications. The chancre and syphilitic sores were evidence that Cook had undergone such excitement; that might have occurred before he was at Shrewsbury.

• Might sexual intercourse produce epilepsy a fortnight after it occurred?—There is an instance on record in which epilepsy supervened upon the very act of intercourse.

Have you any instance in which epilepsy came on a fortnight afterwards?—It is within the range of possibility.

Do you mean, as a serious man of science, to say that?—The results might.

What results were there in this case?—The chancre and the syphilitic sores.

Did you ever hear of a chancre causing epilepsy?—No.

Did you ever dream of such a thing?—I never heard of it.

Did you ever hear of any other form of syphilitic disease producing epilepsy?—No; but tetanus.

The ATTORNEY-GENERAL.—But you say this was epilepsy; we are not talking of tetanus!—You forget the tetanic complications. (Roars of laughter.)

The ATTORNEY-GENERAL.—If I understand right, then, it stands thus—the sexual excitement produces epilepsy, and the chancre superadds tetanic complications!—I say that the results of sexual excitement produce epilepsy.

Mr. BARON ALDERSON said he had heard some person in court clap his hands. On an occasion on which a man was being tried for his life, such a display was most indecent.

Examination continued.—I cannot remember any fatal case of poisoning by strychnia in which so long a period as an hour and a half intervened between the taking of the poison and the appearance of the first symptoms.

What would be the effect of morphia given a day or two previously?—would it not retard the action of the

poison?—No; I have seen opium bring on convulsions very nearly similar.

What quantity?—A grain and a half. From my experience, I think that if morphia had been given a day or two before it would have accelerated the action of the strychnia. I have seen opium bring on epileptic convulsions. If this were a case of poisoning by strychnia, I should suppose that as both opium and strychnia produce congestion of the brain, the two would act together, and would have a more speedy effect. If congestion of the brain was coming on when morphia was given to Cook on Sunday and Monday night it might have increased rather than have allayed it.

But the gentlemen who examined the body say that there was no congestion after death!—But Mr. Bamford says there was.

You stick to Mr. Bamford!—Yes, I do; because he was a man of experience, could judge much better than younger men, and was not so likely to be mistaken.

But Mr. Bamford said that Cook died of apoplexy; do you think this was apoplexy?—No, it was not.

What, then, do you think of Mr. Bamford, who certified that it was!—That was a matter of opinion, but the existence of congestion in the brain he saw.

The ATTORNEY-GENERAL.—The other medical gentlemen said there was none.

Lord CAMPBELL.—This is rather a matter of reasoning than of evidence.

Re-examined by Mr. Serjeant Shea.—I have seen a great many children asleep, and can tell whether they are so without seeing their faces. In the case of the child who died of tetanus the mother had told me that it was asleep. Dr. Mason Good is a well known author upon convulsions. From my reading of his work and others I have learnt that there are convulsions which are not, strictly speaking, epilepsy, although they resemble it in some of its features. I also know the works of M. Esquirol. From reading those and other works I know that epileptic convulsions sufficiently violent to cause death frequently occur without the patient entirely losing his consciousness. Epilepsy, properly so called, is sudden in its attack. The patient falls down at once with a shriek. That disease occurs very often at night, and in bed. It sometimes happens that its existence is known to a young man's family without his knowing anything about it. Convulsions of an epileptic character are sometimes preceded by premonitory symptoms. It sometimes happens that during such convulsions actual epilepsy comes on, and the patient dies of an internal spasm. It often happens that if a patient has suffered from epilepsy and convulsions of an epileptic kind during the night, he may be as well next day as if nothing had happened, more especially when an adult is seized for the first time. In such cases it often happens that such fits succeed each other within a short period. I heard the deposition of Mr. Bamford. If it were true that the mind of the deceased was distressed and irritable the night before his death, I should say that he was suffering from depression. From what Cook said about his madness in the middle of the Sunday night I should infer that he had been seized with some sudden cramp or spasm. Supposing that there was no such cramp, I should refer what he said to nervous and mental excitement. There might be some disturbance of the brain. I do not believe that inflammation can be absent while spots on the stomach be present. About eighteen months ago I examined the stomach of a person who had died from fever, in which I found white spots. I consulted various authors. In an essay on the stomach by Dr. Spodboyne, a medical man who practised in Edinburgh, I found mention of similar spots in the stomach of a young woman who had died suddenly.

Dr. BAINBRIDGE, examined by Mr. Grove.—I am a doctor of medicine, and medical officer to the St. Martin's workhouse. I have had much experience of convulsive disorders. Such disorders present great variety of symptoms. They vary as to the frequency of the occurrence and as to the muscles affected. Periodicity, or

recurrence at the same hours, days, or months is common. I had a case in which a patient had an attack on one Christmas night, and on the following Christmas night, at the same hour, he had a similar attack. The various forms of convulsions so run into each other that it is almost impossible for the most experienced medical men to state where one terminates and the other begins. In both males and females, hysteria is frequently attended by tetanic convulsions. Epileptic attacks are frequently accompanied by tetanic complications.

Cross-examined by the Attorney-General.—Hysteria convulsions very rarely end in death. I have known one case in which they have done so. That occurred within the last three months. It was the case of a male. It occurred in St. Martin's workhouse. The man had for years been subject to this complaint. On the occasion on which he died he was ill only a few minutes. I did not make a post-mortem examination. I was told he was seized with sudden convulsions, fell down on the ground, and in five minutes was dead. There was slight clenching of the hands, but I think no locking of the jaw. The man was about thirty-five years of age. He was the brother of the celebrated aeronaut, Lieutenant Gale. In many cases of this description consciousness is destroyed. It is not so in all. I have met with violent cases in which it has been preserved. I never knew a case in which during the paroxysm the patient spoke. Epilepsy is sometimes attended with opisthotonos. I have seen cases of traumatic tetanus. In such cases the patient retains his consciousness. I have known many cases of epilepsy terminating in death. Loss of consciousness—not universally, but generally—accompanies epilepsy. I never knew a case of death from that disease where consciousness was not destroyed. I have known ten or twelve such fatal cases.

Re-examined by Mr. Grove.—Persons almost invariably fall asleep after an epileptic attack.

The ATTORNEY-GENERAL.—And after taking opium?—Yes.

EDWARD AUSTIN STEDDY, examined by Mr. Gray.—I am a member of the Royal College of Surgeons, and am in practice at Chatham. In June, 1854, I attended a person named Sarah Ann Taylor for trismus and pleurosthenos. When I first saw the patient, she was bent to one side. The convulsions came on in paroxysms. The pleurosthenos and trismus lasted about a fortnight. The patient then so far recovered as to be able to walk about. About a twelvemonth afterwards, on the 3rd of March, 1855, she was again seized. That seizure lasted about a week. She is still alive. The friends of the patient said that the disease was brought on by depression, arising from a quarrel with her husband.

Cross-examined by Mr. Jones.—I do not know how long before the attack this quarrel occurred. During it, the woman received a blow upon her side from her husband. During the whole fortnight, the lock-jaw or trismus continued. In March, 1855, she was under my care about a week, during the whole of which the trismus continued.

Dr. GEORGE ROBINSON, examined by Dr. Kenealy.—I am a licentiate of the Royal College of Physicians, and physician to the Newcastle-on-Tyne Dispensary and Fever Hospital. I have devoted considerable attention to the subject of pathology. I have practised as a physician for 10 years. I have heard the whole of the medical evidence in this case. From the symptoms described, I should say that Cook died of tetanic convulsions, by which I mean, not the convulsions of tetanus, but convulsions similar to those witnessed in that disease. The convulsions of epilepsy sometimes assume a tetanic appearance. I know no department of pathology more obscure than that of convulsive diseases. I have witnessed post-mortem examinations after death from convulsive diseases, and have sometimes seen no morbid appearances whatever, and in other cases the symptoms were applicable to a great variety of diseases. Convulsive diseases are always connected with the condition of the nerves. The brain has a good deal to do with the production of convulsive diseases, but the spinal cord

has more. I believe that gritty granules in the region of the spinal cord would be very likely to produce convulsions, and I think they would be likely to be very similar to those described in the present case. I think that from what I have heard described of the mode of life of the deceased, it would have predisposed him to epilepsy. I have witnessed some experiments with strychnia, and have performed a few. I have also prescribed it in cases of paralysis.

By the Attorney-General.—I have seen twenty cases where epilepsy has been attended by convulsions of a tetanic character. I have never seen the symptoms of epilepsy proceed to anything like the extent of the symptoms in Cook's case. I never saw a body in a case of epilepsy so stiff as to rest upon the head and the heels. I never knew such symptoms to arise in any case except tetanus. When epilepsy presents any of these extreme forms it is always accompanied by unconsciousness. In almost every case of epilepsy the patient is unconscious at the time of the attack. In cases of epilepsy I have found gritty granules on the brain, and any disturbing cause in the system, I think, would be likely to produce convulsions. I believe that the granules in this case were very likely to have irritated the spinal cord, and yet that no indication of that irritation would have remained after death. I think that these granules might have produced the death of Mr. Cook.

The ATTORNEY-GENERAL.—Do you think that they did so?—Putting aside the assumption of death by strychnia, I should say so.

Are not all symptoms spoken of by Mr. Jones indicative of death by strychnia?—They certainly are.

Then it comes to this: that if there were no other cause of death suggested, you would say that the death in this case arose from epilepsy?—Yes.

By Serjeant Shea.—Epilepsy is a well-known form of disease, which includes many others.

Dr. B. W. RICHARDSON said.—I am a physician practising in London. I have never seen a case of tetanus properly so called, but I have seen many cases of death by convulsions. In many instances they have presented tetanic appearances without being strictly tetanus. I have seen the muscles fixed, especially those of the upper part of the body. I have observed the arms stiffened out, and the hands closely and firmly clenched until death. I have also observed a case of suffocation in the patient. In some forms of convulsions I have seen contortions both of the legs and feet, and the patient generally expresses a wish to sit up. I have known persons die of a disease called angina pectoris. The symptoms of that disease, I consider, resemble closely those of Mr. Cook. Angina pectoris comes under the denomination of spasmodic diseases. In some cases the disease is detectable upon post-mortem examination; in others it is not. I attended one case. A girl ten years old was under my care in 1850. I supposed she had suffered from scarlet fever. She recovered so far that my visits ceased. I left her amused and merry in the morning; at half-past ten in the evening I was called in to see her, and I found her dying. She was supported upright at her own request; her face was pale, the muscles of the face rigid, the arms rigid, the fingers clenched, the respiratory muscles completely fixed and rigid, and with all there was combined intense agony and restlessness, such as I have never witnessed. There was perfect consciousness. The child knew me, described her agony, and eagerly took some brandy-and-water from a spoon. I left for the purpose of obtaining some chloroform from my own house, which was thirty yards distant. When I returned, her head was drawn back, and I could detect no respiration; the eyes were then fixed open, and the body just resembled a statue; she was dead. On the following day I made a post-mortem examination. The brain was slightly congested; the upper part of the spinal cord seemed healthy; the lungs were collapsed; the heart was in such a state of firm spasm and solidity, and so emptied of blood, that I remarked that it might have been rinsed out. I could not discover any appearance of disease that would account for the death, except

a slight effusion of serum in one pleural cavity. I never could ascertain any cause for the death. The child went to bed well and merry, and immediately afterwards jumped up, screamed, and exclaimed, "I am going to die."

By the Attorney-General.—I consider that the symptoms I have described were those of angina pectoris. It is the opinion of Dr. Jenner that this disease is occasioned by the ossification of some of the small vessels of the heart. I did not find that to be the case in this instance. There have been many cases where no cause whatever was discovered. It is called angina pectoris from its causing such extreme anguish to the chest. I do not think the symptoms I have described were such as would result from taking strychnia. There is this difference, that rubbing the hands gives ease to the patient in cases of angina pectoris. I must say there would be great difficulty in detecting the difference in the cases of angina pectoris and strychnia. As regards symptoms, I know of no difference between the two. I am bound to say that if I had known so much of these subjects as I do now, in the case I have referred to, I should have gone on to analyse to endeavour to detect strychnia. In the second case I discovered organic disease of the heart, which was quite sufficient to account for the symptoms. The disease of angina pectoris comes on quite suddenly, and does not give any notice of its approach. I did not send any note of this case to any medical publication. It is not at all an uncommon occurrence to find the hands firmly clenched after death in cases of natural disease.

By Mr. Serjeant Shee.—There are cases of angina pectoris in which the patient has recovered and appeared perfectly well for a period of twenty-four hours, and then the attack has returned. I am of opinion that the fact of the recurrence of the second fit in Cook's case is more the symptom of angina pectoris than of strychnia poison.

Dr. WRIGHTSON was recalled, and in answer to a question put by Mr. Serjeant Shee, he said it was his opinion that when the strychnia poison was absorbed in the system it was diffused throughout the entire system.

By the Attorney-General.—The longer time that elapsed before the death would render the absorption more complete. If a minimum dose to destroy life were given, and a long interval elapsed to the death, the more complete would be the absorption, and the less the chance of finding it in the stomach.

By Mr. Serjeant Shee.—I should expect still to find it in the spleen, and liver, and blood.

CATHERINE WATSON said—I live in Garnkirk, near Glasgow. I was attacked with a fit in October of last year. I had no wound of any kind on my body when I was attacked. I did not take any poison.

By the Attorney-General.—I was taken ill at night. I had felt heavy all day from the morning, but had no pain till night. The first pain I felt was in my stomach, and then I had cramp in my arms, and after that I was quite insensible. I have no recollection of anything after I was first attacked, except that I was bled.

Mr. Serjeant SHEE then said that he was now about to enter into another part of the case for the defence, and probably the Court would think it a convenient period to adjourn.

The ATTORNEY-GENERAL requested that before the Court was formally adjourned a witness named Saunders, whose name was upon the back of the bill, and who was not in attendance, and who he believed had not made his appearance during the trial, should be called upon his recognizances. He added that he believed this witness was also subpoenaed on behalf of the prisoner, but he (the Attorney-General) intended to have called him for the Crown.

The Court directed that the witness should be called upon his recognizances, and this was done, but he did not appear.

TENTH DAY—SATURDAY, MAY 24TH.

OLIVER PEMBERTON, examined by Mr. Serjeant Shee.—I am a lecturer on anatomy at Queen's College, Birmingham, and surgeon to the General Hospital in that town. I was present at the examination of the body of Cook after its exhumation in January last. I observed the spinal cord. It was not in such a state as to enable me to say what had been its condition immediately after the death of the deceased. The upper part, where the brain had been separated, was green in colour, the effects of decomposition. The remaining portion, though fairly preserved for a body which had been buried two months, was so soft that I could not form any opinion as to its state immediately after death.

Cross-examined by the Attorney-General.—It was the day after the long canal had been opened that I saw the spinal cord. The opening of that canal would expose the cord to the atmosphere, but it was still to a certain extent protected by a strong membrane. It is my impression that the dura mater or outer membrane was not opened until I was present. I am not certain of that. I attended on behalf of the prisoner, as also did Mr. Bolton, a professor of Queen's College, Birmingham.

Mr. Serjeant SHEE intimated that this concluded the medical evidence on behalf of the prisoner.

HENRY MATTHEWS, inspector of railway police, deposed at the time at which a train leaving London at five o'clock, in November last, would reach Stafford for Rugeley.

JOSEPH FOSTER stated that he had known Mr. Cook, who was of a weak constitution, and had suffered from bilious attacks.

GEORGE MYATT, in examination, declared that he was at Shrewsbury races, and that he saw Cook and Palmer on Wednesday, the day after Polestar won, at the "Raven," about twelve o'clock at night, when Cook appeared in liquor, but complained of the taste of his brandy-and-water. He added that—On the next day, at night, we all three went to Rugeley. We left Shrewsbury about six o'clock, by the express train. On the way to Rugeley, Palmer was sick, and he and Cook said they could not account for it. Palmer vomited. They said they could not account for the vomiting, unless the dinner had been cooked in a brass vessel, or there was something the matter with the water; and that there had been a great many people sick at Shrewsbury races. I had heard other people say that they had been ill, and could not account for it. On his cross-examination, this witness stated in reference to the evening on which he was with Palmer and Cook at Shrewsbury: I do not remember Mrs. Brooks coming or Palmer being called out of the room. A gentleman came in, whom I now know to be Mr. Fisher. Palmer had not left the room before that. That I will swear. He never left the room until we went to bed. When Fisher came in, Cook asked Palmer to have some more brandy-and-water. Palmer said that he would not have any more unless Cook drunk his off at a draught. Directly he had drunk it, he said there was something in it. I will swear that he did not say, "It burns my throat." He said nothing of that kind. He gave it to some one to taste, but made no other observation.

JOHN SERGEANT, examined by Mr. Serjeant Shee, stated that he had known the deceased. He said, shortly before Cook's death I had an opportunity of noticing the state of his throat. I was with him at Liverpool on the week previous to the Shrewsbury races; we slept in adjoining rooms, and in the morning he called my attention to the state of his throat. I looked at it, and saw that it was full of ulcers and very much inflamed. His tongue was swollen. I told him I was surprised that he could eat and drink with his mouth and throat in such a state. He said it had been in that state for weeks and months, and now he did not take notice of it. He had shown me that his throat was in this state previously, at almost every one of our meetings. I have heard Cook, a short time before his death, apply to Palmer to supply him

with a lotion called "black-wash." I never saw his throat dressed by any one.

The evidence of JEREMIAH SMITH referred but little to the state of health of Cook. The witness stated, however, that he slept in the same room with Cook, on the Saturday night last before the death of the latter; and he added, it was late (about twelve) when we went to bed. In the early part of the night he was unwell. He got some toast-and-water and was washing his mouth; he was sick, and he gargled his throat. A night-chair was in the room. I saw him there once, at least. He retched, but I don't know whether he was able to vomit, because I did not leave my bed. On the Tuesday night following (the night of Cook's death) he met Palmer, as he said, about ten minutes past ten o'clock, coming from Stafford in a car, and they went together to see Cook. We then went up to Cook's room together. Cook said, "You are late to-night, doctor; I did not expect you to look in. I have taken the medicine which you gave me." He said he had taken the pills which Bamford had sent, intimating, as I thought, that he should not have taken them if Palmer had called in.

After the evidence of this witness,

Mr. Serjeant Shee contended that he was entitled to reply on the part of the evidence on certain non-medical points.

The LORD CHIEF JUSTICE.—We are of opinion that you have no right to reply.

Mr. Baron ALDENSON.—That is quite clear.

The ATTORNEY-GENERAL said, he had been taken somewhat by surprise yesterday by the evidence of Dr. Richardson with respect to the disease known as angina pectoris. Dr. Richardson adverted to several books and authorities. He had now those books in his possession, and he was desirous of putting some questions arising out of that part of the evidence.

The Court decided against the application.

The case for the defence having been concluded,

The ATTORNEY-GENERAL rose to reply on the part of the Crown.—He again asserted that the deceased had died from the effects of poison; and the following were important passages in his address:—The case submitted to you on behalf of the Crown is this—that, having been first practised upon by antimony, Cook was at last killed by strychnine. The first question to be considered is—what was the immediate and proximate cause of his death. The witnesses for the prosecution have told you, one and all, that in their judgement he died of tetanus, which signifies a convulsive spasmodic action of the muscles of the body. Can there be any doubt that their opinion is correct? Of course it does not follow that because he died of tetanus, it must be the tetanus of strychnine. That is a matter for after consideration. But, inasmuch as strychnine produces death by tetanus, we must see, in the first place, whether it admits of doubt that he did die of tetanus. I have listened with great attention to every form in which that disease has been brought under your consideration—whether by the positive evidence of witnesses, or by reference to the works of scientific writers—and I assert deliberately that no case, either in the human subject or in the animal, has been brought under your notice in which the symptoms of tetanus have been so marked as in this case. From the moment the paroxysms came on in which the unhappy man died, the symptoms were of the most marked and striking character. Every muscle, says the medical man who was present at the time, was convulsed—he expressed the most intense dread of suffocation—he entreated them to lift him up lest he should be suffocated—every fibre of his body, from the crown of his head to the soles of his feet, was contracted—the flexibility of the trunk and of the limbs was gone—and you could only have raised him up as you would have lifted a corpse. In order that he might escape from the sense of suffocation, they turned him over, and then, in the midst of that fearful paroxysm, one mighty spasm seems to have seized his heart, to have pressed from it the life-blood, and the result was death. And when he died, his body exhibited the most marked symptoms of this fear-

ful disease. He was convulsed from head to foot. You could have rested him on his head and heels, his hands were clasped with a grasp that it required force to overcome, and his feet were twisted so as to resemble a natural malformation. Then, if it was a case of tetanus—into which fact I will not waste your time by inquiring—the question arises, was it a case of tetanus produced by strychnine?

We have examined Sir Benjamin Brodie—a man, I need scarcely say, of the most exalted eminence in his profession—Mr. Curling, Dr. Todd, Dr. Daniel—a gentleman who has seen between twenty-five and thirty cases of natural tetanus in India, and all these distinguished witnesses give exactly the same description of the course which the case invariably takes. Idiopathic, or natural tetanus, therefore, is out of the question. Traumatic tetanus is out of the question for a different reason.

We have had several representations of the death of Cook by witnesses who appear to have come into Court—I say it with the deepest sorrow—for the express purpose of studiously misconceiving and misinterpreting the facts of this case. We have called before you an eminent physician who had Cook under his care. It seems that in the spring of the year 1855, Cook, having found certain small spots in one or two parts of his body, and having something of an ulcerated tongue and a sore throat, conceived that he was labouring under symptoms of a particular character. He addressed himself to Dr. Savage, who found that the course of medicine he had been pursuing was an erroneous one. He enjoined the discontinuance of mercury. His injunction was obeyed, and the result was that the patient was suffering neither from disease nor wrong treatment. But lest there should be any possibility of mistake, Dr. Savage made him come to him again and again to see that all was going on well; and this medical witness assures us that long before the summer advanced every unsatisfactory symptom had entirely disappeared; there was nothing wrong about Cook except that affection of the throat to which thousands of people are subject.

It is said that he had exhibited his tongue to witnesses, and applied for a mercurial wash; but it is clear, that although he had at one time adopted that course, he had, under the recommendation of Dr. Savage, got rid of it, and there is no justification for saying he was suffering under syphilitic affection of any kind. The statement has been negatived by a man of the highest authority and distinction. There is not a shadow of foundation for it. There was nothing about the man to give even the colour of probability to the supposition that there was in any part of his body any mark, wound, or lesion—syphilitic or otherwise—that could result in traumatic tetanus.

Mr. Nunneley, who comes here for the purpose of inducing you to believe there was something like idiopathic tetanus, goes through the bead-roll of Cook's supposed infirmities, talks about his excitability, his delicacy of chest, his affection of the throat, and says these things would predispose to idiopathic tetanus if he took cold. But what evidence is there that he did take cold? Not the slightest. There is not the smallest pretence that he ever complained of a cold or was treated for a cold. I cannot help saying that it is a scandal upon a learned, distinguished, and liberal profession that men should come forward with speculations and conjectures such as these, and that they should misinterpret facts, and extract from them sophistical and unwarrantable conclusions with the view of deceiving a jury. I have the greatest respect for science—no man can have a greater; but I cannot repress my indignation and abhorrence when I see it perverted and prostituted to the prejudice of truth in a court of justice.

A medical witness has talked to you about certain excitements being the possible causes of idiopathic tetanus. What pretext is there for this idle story about excitements so intense and convulsive as possibly to have excited idiopathic tetanus? There is not a shadow of a pretext for any such theory. But even if there were excitement or depression—if these things were capable of

producing idiopathic tetanus—the tetanus of disease is so unlike the tetanus of poison that it is impossible to mistake the two. What are the cases which they attempted to set up against us! They brought all the way from Scotland a girl named Watson, who deposed that, though she had not taken any poison and had no wound of any kind on her body, she was attacked with a violent paroxysm in the month of October last year. But in cross-examination it appeared that she had been ill all day, was taken worse at night, had a pain in her stomach and cramps in her arms, was for a while quite insensible, but soon recovered, and went about her business. That is the case they have brought forward as a parallel for that mortal anguish—the spasm—the convulsions—the death agony of this unhappy man! This is the sort of evidence with which they attempt to meet the appalling case that now engages your attention. Gentlemen, I venture, upon the evidence which has been brought before you, to assert boldly that the cases of idiopathic and traumatic tetanus are marked by clear and obvious characteristics, distinguishing them from the tetanus of strychnine; and I say that the tetanus which accompanied Cook's death is not referable to either of these forms of tetanus. It was the tetanus, not of disease, but of poison. You have upon this point the evidence of men of the highest competency and most unquestionable integrity, and upon their testimony I am satisfied you can come to no other conclusion than that this was not a case of either idiopathic or traumatic tetanus. But then various attempts have been made to set up different causes as capable of producing this tetanic disease. First, we have the theory of general convulsions; and Mr. Nunneley, having gone through the supposed infirmities of Cook, says, "Oh, this may have been a case of general convulsions; I have known general convulsions assume a tetanic character." Therefore I ask him this question, "Have you ever seen one single case in which convulsions marked by tetanic symptoms were not also accompanied by entire unconsciousness on the part of the patient?" He replied, "No, I have never seen any such case; but I am told that in the books some such case is reported." And then he went on to cite Dr. Copland's book as an authority for the theory that general convulsions may be accompanied by tetanic symptoms. Now, Dr. Copland, I apprehend, would stand higher as an authority than the man who quotes him. Dr. Copland might have been called, but was not called, notwithstanding the challenge which I threw out, because it is, unfortunately, easier to gather together from the east and from the west practitioners of more or less celebrity than to bring to bear on the subject the light of science as treasured in the books of the eminent practitioners. But I say, as regards general convulsions the distinction is plain. If they destroy the patient they previously destroy his consciousness. But here we have no such state of facts. It is beyond all controversy, that from the first moment of Cook's attack till his heart ceased to beat consciousness remained. But then comes another supposed condition, from which it is conjectured that death in this particular form may have resulted. It appears from the evidence, that at the post-mortem examination certain granules were discovered in the spinal marrow of Cook, and it is attempted to be shown, upon the authority of Mr. Partridge,—a surgeon, I admit, of the highest eminence and the most unblemished honour—that these granules may have occasioned tetanic convulsions. Mr. Partridge was called to prove that this may have been a case of what is called arachnitis, arising from granules. I asked him to explain the symptoms which he would find in such a case. I called his attention to what it had evidently not been called to before—namely, the symptoms in Cook's case, and I asked him in simple terms whether, looking at the symptoms, he would pledge his reputation, in the face of the medical world and in the face of this Court, that this was a case of arachnitis! He would not do so, and the case of arachnitis went. Then we had a gentleman from Scotland to inform us, as the next proposition, that Cook's was a case of epileptic convulsions with tetanic complications.

Well, I asked him this question, "Did you ever know of epilepsy, with or without tetanic complications, in which consciousness was not destroyed before the patient died?" His reply was, "No, I cannot say that I ever did, but I have read in some book that such a case has occurred."—"Is there anything to make you think this was epilepsy?" "It may have been epilepsy, because I don't know what else it was."—"But you must admit that epilepsy is characterized generally by loss of consciousness; what difference would the tetanic complications have made?" That he was unable to explain. I remind you of this species of evidence that you may perceive that you have had before you witnesses who have resorted to the most speculative reasoning and put forward the barest possibilities in support of theories for which there is little if any foundation. But this I undertake to assert, that there is not a single case to which they have spoken from their experience, or as the result of their own knowledge, in which there were the formidable and decisive symptoms of marked tetanus which existed in the present case. Having gone through these four sets of diseases—general convulsions, arachnitis, epilepsy proper, and epilepsy with tetanic complications—I supposed we had pretty nearly exhausted the whole of their scientific theories. But we were destined to have another, and that assumed the formidable name of angina pectoris. It must have struck you when my learned friend opened his case, that he never ventured to assert the nature of the disease to which they refer the death of Cook; and it strikes me as most remarkable that not less than five distinct and separate theories are set up by the witnesses who have been called—general convulsions, arachnitis, epilepsy proper, epilepsy with tetanic complications, and lastly, angina pectoris. The gentleman who was called yesterday, and who talked of angina pectoris, would not have escaped so easily if I had been in possession of the books to which he referred; for I should have been able to expose the ignorance or the presumption of the assertions he dared to make. I say the ignorance or the presumption, or, what is worse, the deliberate intention to deceive. I lay to his charge one or other of these three, and, in the presence of this Court, and in the face of the whole medical profession, I assert that one or other of these charges I should have been able to substantiate. The medical witnesses for the defence differ one and all in their views; but there is a remarkable coincidence between the opinions of some of them and the opinions of those who have been examined on the other side. All the medical men brought forward by the defence—Partridge, Robinson, and Letheby, concur with Sir B. Brodie and the other Crown witnesses in declaring that, in the whole course of their experience, and in the whole range of their learning and observation, they know of no disease to which the symptoms in Cook's case can be referred. When such men as these agree upon any point it is impossible to exaggerate its importance. I think I may say that the witnesses called for the defence admit this—that from the time the paroxysm set in of which Cook died, until the time of his death, the symptoms are precisely those of tetanus by strychnine.

The learned counsel then alluded to the objection started, that the period which had elapsed between the supposed administration of the poison and the appearance of the symptoms militated against this view, and he remarked that different races of animals and different individuals would present unlike susceptibility, and that poison would operate more rapidly in solution than in a solid form, as in pills. He then traced over again the circumstances immediately attending the death of Cook. He sits up and prays to have his neck rubbed. What was the feeling about his neck but a premonitory symptom, which was to precede the paroxysms that were to supervene! He begs to have his neck rubbed, and that gives him some comfort. But here they say this could not have been tetanus from strychnine, because animals cannot bear to be touched, for a touch brings on the paroxysm—not only a touch, but a breath of air, a sound, a work, a movement of any one near will bring on a return of the paroxysm. Now, in three cases

of death from strychnine we have shown that the patient has endured rubbing of the limbs, and received satisfaction from that rubbing. In *Mrs. Smith's* case, when her legs were distorted, she prayed and entreated that she might have them straightened. The lady at Leeds, in the case which Mr. Nunneley himself attended, implored her husband between the spasms to rub her legs and arms, in order to overcome the rigidity. That case was within Mr. Nunneley's own knowledge, and yet in spite of it, although he detected strychnine in the body of the unhappy woman, he dares to say that Cook's having tolerated the rubbing between the paroxysms is a proof that he had not taken strychnine. Then there is the case of Clutterbuck. He had taken an overdose of strychnine, and suffered from the re-appearance of tetanus, and his only comfort was to have his legs rubbed. Therefore, I say that the continued endeavour to persuade the jury that the fact of Cook's having had his neck rubbed proves that this is not tetanus by strychnine, shows nothing but the dishonesty and insincerity of the witnesses who have so dared to pervert the facts. But they go further, and contend that Cook was able to swallow. So he was before the paroxysms came on. But nobody has ever pretended that he could swallow afterwards. He swallowed the pills, and, what is very curious, and illustrates part of the theory, is this—that it was the act of swallowing the pills, a sort of movement in raising his head, which brought on the violent paroxysm in which he died. So far from militating against the supposition that this was a case of strychnine, the fact strongly confirms it. Then they call our attention to the appearances after death, and they say there are circumstances to be found which go against this being a case of strychnine. They say the limbs became rigid either at the time of death or immediately after, and that ought not to be found in a case of strychnine. Mr. Nunneley says, "I have always found the limbs of animals become flaccid before death, and I have not found them become rigid after death." Now, I can hardly believe that statement. The very next witness who got into the box told us that he had made two experiments upon cats, and killed them both, and he described them as indurated and contracted when he found them some hours after death. And yet the presence of rigidity in the body immediately after death is put forth by Mr. Nunneley as one of his reasons for saying that this is not a death by strychnine, although Dr. Taylor told us that, in the case of one of the cats, the rigidity of the body was so great that he could hold it out by the leg in a horizontal position. Notwithstanding that evidence Mr. Nunneley has the audacity to say that he does not believe this is a case of strychnine, because there was rigidity of the limbs, because the feet were distorted, the hands clenched, and the muscles rigid. This shows what you are to think of the honesty of this sort of evidence, in which facts are selected because they make in favour of particular hypotheses of the person advancing them. The next point relied on is, that the heart was empty, and that in the animals operated upon by Dr. Nunneley and Dr. Letheby the heart was full. I don't think that applies to all cases. But it is a remarkable fact connected with the history of the poison, that you never can rely upon the precise form of its symptoms and appearances. There are only certain great, leading, marked characteristic features. We have here the main, marked, leading characteristic features; and we have what is more—collateral incidents, similar to the cases in which the administration and the fact of death have been proved beyond all possibility of dispute. Why, in two cases which have been mentioned—those of *Mrs. Smyth* and the *Glasgow girl*—the heart was compressed and empty. We know that in cases of tetanus death may result from more than one cause. All the muscles of the body are subject to the exciting action of the poison. But no one can tell in what order these muscles may be affected, or where the poisonous influence will put forth. When it arrests the play of the lungs and the breathing of the atmospheric air, the result will be, that the heart is full; but if some spasm seizes on the heart,

the heart will be empty. You have never any perfect certainty as to the mode in which the symptoms will exhibit themselves. This is brought forward as a conclusive fact against death by strychnine, and yet the men who gave this statement under the sanction of scientific authority have heard both cases spoken to by the gentlemen who examined the bodies. Then, with regard to congestion of the brain and other vessels, the same observation applies. Instead of being killed by action on the respiratory muscles of the heart, death is the result of a long series of paroxysms, and you expect to find the brain and other vessels congested by that series of convulsive spasms. As death takes place from one or other of these causes, so will the appearances be. There is every reason to believe that the symptoms in this case were symptoms of tetanus in the strongest and most aggravated form. Looking at the peculiar sufferings which attended this unhappy man, setting aside the theory of convulsions, of epilepsy, of arachnitis, and angina pectoris, and excluding idiopathic and traumatic tetanus—what remains! The tetanus of strychnine, and the tetanus of strychnine alone.

"If strychnine had been found in the body, of course there would have been no difficulty in the case, and we should have had none of the ingenious theories which medical gentlemen have been called here to propound. But the question for your consideration is, whether the absence of its detection leads conclusively to the conclusion that this death was not caused by the administration of strychnine? Now, in the first place, under what circumstances was the examination made by Dr. Taylor and Dr. Rees? They have told us that the stomach of the man was brought to them for analysis under the most unfavourable circumstances. They state that the contents of the stomach had been lost, and that, therefore, they had no opportunity of experimenting upon them. It is true that they who put the portions of the body into the jar make statements somewhat different. But there appears to have been by accident some spilling of the contents, and there is the most undeniable evidence of considerable bungling in the way in which the stomach had been cut and placed in the jar. 'It was cut,' says Dr. Taylor, 'from end to end, and it was tied up at both ends.' It had been turned among the intestines, and placed among a mass of feculent matter, and was altogether in the most unsatisfactory condition for analysis. It is very true that Mr. Nunneley, Mr. Herapath, and Dr. Letheby say that whatever impurities there may have been, if strychnine had been in the stomach, they would have found strychnine there, no matter how decomposed or putrescent the organic matter might be. Bearing in mind Mr. Herapath's eminence in his profession, I should have had much confidence in his testimony, were it not for the active and zealous feeling of partisanship which he has manifested on repeated occasions in the course of this inquiry. It had come to my knowledge that he had been heard to assert that this was a case of death by strychnine, but that Dr. Taylor had not gone the right way to find out the poison. I pressed him urgently on this point, and I am sure you will be of opinion, with me, that his explanation of his having formed his judgment merely from the newspaper reports was anything but satisfactory. There can be no doubt that, in his conscience, Mr. Herapath believes this to be a case of death by poison—indeed, he has said as much; and yet we have seen him mixing himself up in this case with all the enthusiasm of a partisan, and suggesting to my learned friend questions with a view to the protection of a man whom he feels to be guilty of murder. I reverence the man who, from a sense of justice and an innate love of truth, comes forward in behalf of any accused person who is in danger of being swept to destruction by the torrent of prejudice; but I have no language to express my abhorrence for that traffic testimony which, from professional pique or for the sustentation of a particular theory, men of science—I grieve to say it—occasionally are led to offer. But assuming all that they say on the question of detecting strychnine to be true, is it certain that the poison can be found in all cases? Dr.

Taylor says 'No,' and that it would be a most mischievous and dangerous proposition to assert that the poison must in all cases be detected, for such a theory might enable many a guilty man to escape, who would take care to administer only such quantities as, being large enough to destroy, would not be large enough to admit of subsequent detection by analysis in the stomach. What have these gentlemen done! They have given large doses in the experiments they have made for the purposes of this case, in which they have been 'retained'—I use the word 'retained,' for it is the proper word—in all these cases, I say, they have given doses large enough to be detected. But the gentlemen who made the experiments in Cook's case failed in detecting strychnine in two cases out of four in which they had administered it to animals. The conclusion I draw is, that there is no positive mode of detection. But this case does not rest here."

The Attorney-General then drew attention to the fact that the purchase of strychnine by Palmer on two separate occasions had been proved in evidence, and that this portion of the case had been left untouched in the defence. That the object for which the drug was bought, at unaccustomed places, had not been shown:—

"Purchased for whom—purchased for what! If for any patient—who is that patient! Produce him. If for any other purpose—at least let us have it explained. Has there been the slightest shadow of an attempt to explain it! Alas, I grieve to say, none—none! At the outset of the case something was said about some dogs which had been troublesome in the paddocks where the mares and foals were kept, but that proved to be in September. If there had been any recurrence of such a thing, where are the grooms who had the charge of these horses! why are they not here to state the fact! Not only are they not called—they are not even named.

"But, said my learned friend, why should Palmer have purchased strychnine in Rugeley when he might have got it in London! I feel the force of the observation. But let us see how the facts stand. He was in town on the Monday, and had the opportunity, as my learned friend suggests, of purchasing strychnine there. On the other hand, he had much to do on that day. He had the train to catch at a certain hour, and, in the meantime, he had his pecuniary embarrassments to solve if he could. Time may have flown too fast to permit him to purchase this strychnine. Even if it had not, I do not believe that strychnine is sold in chemists' shops without the requisite of some name or voucher; and it would have been worse to have bought strychnine in London than at home. I do not say that this is not a difficulty in the case—a matter well worthy of your consideration; but, on the other hand, I say that there is proof of the purchase of strychnine under circumstances which cannot fail to lead to the conclusion that he shrunk from the observation of Newton at the time that he was buying it; and there is a total absence of all proof—nay, of all suggestion—of any legitimate purpose to which that fatal poison was intended to be, or was, in point of fact, afterwards applied."

He then dwelt on the fact that Palmer called in Mr. Bamford, and afterwards Mrs. Jones, to attend Cook, with the view of showing that he felt no apprehension of acute suspicion on the part of the former, and had no information that the latter was about to sleep in Cook's room; and he then went minutely into the methods which Palmer appeared to have organised in order to shield himself from suspicion. He next treated of the administration of antimony, proved to have been taken by the deceased recently, as it was discovered in the blood after death, and had not been administered by any medical attendant of the deceased (excepting Palmer himself), although continual vomitings had ensued along one period of the case. The suppression by Palmer of all mention to Bamford and Jones of the fit experienced by Cook on the Monday night, and other collateral circumstances, were successively recapitulated, as also all the defeat of Palmer's efforts to seclude the body from further observation in consequence of the astuteness and

sagacity of Mr. Stevens. The conversation of Palmer with Newton on the eve of the first post-mortem examination, as to the chance of finding strychnine in the stomach of a dog after death, the loss of the betting-book, and the assertion of Cook's large liabilities to Palmer, the behaviour of the latter with reference to the jar at the post-mortem examination, and the desire he manifested to overset the fly in which the latter was conveyed, were recalled to the recollection of the jury; and the Attorney-General contended that, so far from Palmer having an interest in prolonging the life of Cook, the latter could not, or probably would not, assist him further than he had already done, and that indeed by the death of Cook, Palmer might secure for himself the ready money which Cook possessed, and of which Palmer stood so much in need, to extricate himself from the most severe embarrassment. The Attorney-General further commented upon the unwise confidence in the innocence of his client expressed by Mr. Serjeant Shee, and with an appeal to the jury to act entirely as they were prompted by their consciences, he terminated a powerful speech of four hours' duration.

ELEVENTH DAY—MONDAY, MAY 26TH.

The LORD CHIEF JUSTICE (the Right Hon. Lord Campbell) commenced at great length the summing-up of the evidence. He first entreated the jury to banish from their minds all that they might have heard before the commencement of the trial. He reminded them that to obviate the effect of prejudice the case had by Act of Parliament been removed from Stafford to the Central Criminal Court; and he added—I must not only warn you against being influenced by what you have before heard, but I must also warn you not to be influenced by anything but by the evidence which has been laid before you with respect to the particular charge for which the prisoner is now arraigned. It is necessary that I should so warn you in this case, because the evidence certainly implicates the prisoner in transactions of another description which are very discreditable. It appears that he has forged a great many bills of exchange, and that he had entered upon transactions which were not of a creditable nature. Those transactions, however, must be excluded from your consideration altogether. On the part of the prosecution, it is alleged that the deceased, John Parsons Cook, was first tampered with by antimony, that he was then killed by the poison of strychnine, and that his symptoms were the symptoms of poisoning by strychnine. Then it is alleged that the prisoner at the bar had a motive for making away with the deceased, that he had an opportunity of administering poison, that suspicion could fall on no one else, and that a few days before the time when the poison is supposed to have been administered, he had purchased strychnine at two different places. It is also alleged by the prosecution that his conduct during that transaction and after it was that of a guilty and not of an innocent man. The prisoner at the bar, on the other hand, puts forward these allegations—that he had no interest in procuring the death of John Parsons Cook, but, on the contrary, that it was his interest to keep him alive; that the death was not occasioned by strychnine, but by natural disease, and that the symptoms were those of natural disease, and were by no means consistent with the supposition of death by strychnine. It is of great importance in cases of this description that you should consider whether there was any motive for committing the crime with which a prisoner is charged, for if there be no motive there is an improbability of the offence having been committed. If, on the other hand, there be any motive which can be assigned for the commission of the deed, the adequacy of that motive becomes next a matter of the utmost importance. The great question which you will have to consider is whether the symptoms of Cook's death are consistent with poisoning by strychnine. If they are not, and you believe that the death arose from natural causes, the prisoner is at once entitled to

your verdict of "not guilty." If, on the other hand, you think that the symptoms are consistent with poisoning by strychnia, you have another and important question to decide, namely, whether the evidence which has been adduced is sufficient to convince you that death was effected by strychnia, and if so, whether such strychnia was administered by the prisoner.

The learned judge then proceeded to trace that portion of the case first raised by the Attorney-General with respect to motives for the commission of murder arising out of the pecuniary position of Palmer. At the end of this portion of his charge he remarked—Now, as it strikes my mind, the circumstance that Palmer remained in the neighbourhood after suspicion had arisen against him is of importance, and ought to be taken into consideration by you, although he may, perhaps, have done so thinking that from the care he had taken nothing could ever be discovered against him. It seems, however, that he was imprisoned on civil process before the verdict of the coroner's jury rendered him amenable to a criminal charge. Besides the check purporting to be signed by Cook, the prisoner also had in his possession a document purporting that certain bills had been accepted by him for Cook, but neither that document nor any such bills have been found. All the papers which were not retained were returned to the prisoner's brother, and notice has been given to produce them, but neither the bills nor the document are produced.

He then entered upon a recapitulation of the evidence, beginning with that of Mr. J. Fisher. We shall not reproduce that evidence in this place, except occasionally, but only the comments of the learned lord upon the relative value of the testimony in the steps of the inquiry. His Lordship read the evidence of Fisher, of Mr. Jones, the law stationer, of Gibson, and of Mrs. Brooks:—This, he said, ends the history of Cook's illness at Shrewsbury. Taken by itself, it amounts to very little, but in connexion with what follows it deserves your serious consideration. Then with regard to what took place at the "Tallot Arms," at Rugeley, where Cook lodged, you have a most important witness—Elizabeth Mills.

His Lordship then read the evidence of Mills, observing that the events of Monday and Tuesday, the 19th and 20th of November, and the symptoms which immediately preceded the death of Cook, formed a most material part of the case. It has been suggested, continued the learned Judge, by the counsel for the defence, that Elizabeth Mills may have been bribed by Mr. Stevens, the father-in-law of Cook, to give evidence prejudicial to the prisoner; but, in justice to Mr. Stevens and to Elizabeth Mills, I am bound to declare that no one fact has been adduced to warrant us in believing that there is the slightest foundation for any such statement. The testimony of Lavinia Barnes corroborates that of Mills as to the latter having been seized with illness immediately after she had taken two spoonfuls of the broth. There is some little difference of evidence as to the exact time when Palmer was seen at Rugeley on the Monday night after his return from London, but you have before you the statements of all the witnesses, and you will decide whether the point is one of essential importance. The learned Judge then read over without comment his notes of the evidence given by the witnesses Anne Rowley and Sarah Bond, and then proceeded to recapitulate the facts deposed to by Mr. Jones, surgeon of Lutterworth. Your attention, he observed, has been very properly directed to the letter written by the prisoner on Sunday evening to Mr. Jones, summoning the latter to the sick bed of his friend Cook. The learned counsel for the defence interprets that document in a sense highly favourable to the prisoner, and contends that the fact of his having insured the presence of such a witness is conclusive evidence of the prisoner's innocence; you will say whether you think that it is fairly susceptible of such a construction.

The deposition of Mr. Jones taken before the coroner having been read, at the instance of Mr. Serjeant Shee, the learned Judge remarked—It is for you to say whether, in your judgment, this deposition at all varies from the evidence given by Mr. Jones when examined here; I

confess that I see no variation and no reason to suppose that Mr. Jones's evidence is not the evidence of sincerity and of truth.

He then read the evidence of Dr. Savage; after which he remarked—Thus, then, the evidence is very strong, both from professional men and non-professional persons, to show that at the period of Shrewsbury races, down to the attack of Wednesday night, Cook was in better health than he had been for some time before. The next witness is Charles Newton. Having read the evidence of this witness and his deposition before the coroner, his Lordship said—This is the evidence of Newton, a most important witness. It certainly might be urged that he did not mention the furnishing of strychnia to Palmer on the Monday night before the coroner; he did not mention it until the Tuesday morning, when he was coming up to London. That certainly requires consideration at your hands; but then you will observe that in his deposition, which has been read to you, although there is an omission of that, which is always to be borne in mind, there is no contradiction of anything which he has said here. Well, then, you are to consider what is the probability of his inventing this wicked lie—a most important lie, if lie it be. He had no ill-will towards the prisoner at the bar; he had never quarrelled with him, and had nothing to gain by injuring him, much less by betraying him to the scaffold. I cannot see any motive that he could have for inventing a lie to take away the life of the prisoner. No inducement was held out to him by the Crown; he says himself that no inducement was held out to him, and that at last he disclosed this circumstance from a sense of duty. If you believe him his evidence is very strong against the prisoner at the bar; but we will now turn to the next witness, Charles Joseph Roberts, whose evidence is closely connected with that of Newton. Having read the evidence of Roberts, Mr. Hawkins's assistant, who stated that on Tuesday he sold to the prisoner, at his master's shop, six grains of strychnia, his Lordship continued—This witness was not cross-examined as to the veracity of his testimony, nor is he contradicted in any way. It is not denied that on this Tuesday morning the prisoner at the bar got six grains of strychnia from Roberts. If you couple that with the statement of Newton—believing that statement—you have evidence of strychnia having been procured by the prisoner on the Monday night before the symptoms of strychnia were exhibited by Cook, and, by the evidence of Roberts, undenied and unquestioned, that on the Tuesday six grains of strychnia were supplied to him. Supposing you should come to the conclusion that the symptoms of Cook were consistent with death by strychnia—if you think that his symptoms are accounted for by merely natural disease, of course the strychnia obtained by the prisoner on the Monday evening and the Tuesday morning would have no effect; but if you should think that the symptoms which Cook exhibited on the Monday and Tuesday nights are consistent with strychnia, then a case is made out on the part of the Crown. After the most anxious consideration I can suggest no possible solution of the purchase of this strychnia. The learned counsel for the prisoner told us in his speech that there was nothing for which he would not account. The learned counsel did not favour us with the theory which he had formed in his own mind with respect to that strychnia. There is no evidence, there is no suggestion, how it was applied, what became of it. That must not influence your verdict, unless you come to the conclusion that the symptoms of Cook were consistent with death by strychnia. If you come to that conclusion, I should shrink from my duty, I should be unworthy to sit here, if I did not call your attention to the inference that, if Cook did die from strychnia, that strychnia was administered by the prisoner at the bar. (Sensation.)

In remarking upon the evidence given by Mr. Stevens, Lord Campbell said—There was a violent attack, no doubt justified by the discharge of his duty, made by the learned counsel for the prisoner, on the character and conduct of Mr. Stevens in this matter. It will be

for you to say whether these observations are well founded. For my own part I do not see in his conduct anything in the slightest degree to justify them. Mr. Stevens was very much attached to the young man, and whatever event this trial may have, it must be remembered there were circumstances and appearances which might well have justified suspicion. He has done nothing which he was not perfectly justified in doing. I say he was justified in obtaining an inquiry into the causes of Cook's death.

After the judge had recapitulated what had been stated by Mary Keeley,

Serjeant SHEX asked—My Lord, will you read that portion of the witness's evidence about the position of the body being straight?

Lord CAMPBELL said, at first, he did not remember it, but, on referring to his notes, read—"I got to the 'Talbot Arms,' about one in the morning of Wednesday. The body was still warm, but the hands and arms were cold. The body was lying on the back, straight down the bed. The arms were crossed upon the chest." And he then went on to read his notes of the evidence of Dr. Harland, of Mr. Devonshire, and of James Myatt, the postboy. As to the pushing of Mr. Devonshire, who operated, and the removal of the jar on the first post-mortem examination, the learned Judge continued,—From that push no inference unfavourable to the prisoner can be drawn, as it might easily be the result of accident. In the removal of the jar there would be nothing more than in the pushing, were it not coupled with the evidence afterwards given, which may lead to the inference that there was a plan to destroy the jar and prevent the analysis of its contents. Remarking upon the evidence of Myatt, the Chief Justice said,—In cases of circumstantial evidence you must look to the conduct of the person charged, and you must consider whether that conduct is consistent with innocence or is compatible with guilt. I see no reason to doubt the evidence of that postboy. An attempt was made upon cross-examination to show that the offer of 10*l.* was not made in reference to the jar, but as an inducement to upset Mr. Stevens. It was suggested, you will remember, that Stevens had wantonly provoked Palmer, and that Palmer might be excused, therefore, if he wished him to be upset. I see no ground for supposing that Stevens gave Palmer any such provocation, and if you believe the postboy, that bribe was offered him to induce him to upset the jar.

That is not indeed a decisive proof of guilt, but it is for you to say whether the prisoner did not enter upon that contrivance in order to prevent an opportunity of examining the contents of the jar, which might contain evidence against him.

The evidence of Samuel Cheshire, the late postmaster at Rugeley, came next in order. Amongst other things, this witness had stated, that on the 21st of November, he received a cheque, bearing the signature of the deceased. He returned that cheque to the prisoner by post. The amount of the cheque was £350. Here (continued the learned Judge) a form of law was gone through, a notice to produce the cheque in question was served upon the prisoner and his attorney, it was traced to the custody of the prisoner, and then could not be found; and with respect to the letter sent by Dr. Taylor to the coroner, with the contents of which Palmer became acquainted through the instrumentality of Cheshire, the Lord Chief Justice remarked, there can be no question that this was a highly improper letter for the prisoner to write; and, speaking as the chief coroner of England, and being desirous for the due administration of justice and of the law, I have no hesitation in saying that it was not creditable in Mr. Ward to receive such a letter without a public condemnation of its having been written. You will say, gentlemen, whether the conduct of the prisoner in that respect—suggesting to the coroner the verdict which he should obtain from the jury—is consistent with innocence.

The next witness called was Mr. Ellis Crisp, the inspector of police at Rugeley, who said—"On the 17th of December I assisted to search the prisoner's house, and

found the book I now produce. It contains the following entry in the frontispiece:—"Strychnine kills by causing a tetanic fixing of the respiratory muscles. The entry was in the prisoner's hand writing." The learned Judge, holding the book in his hand, said, in an emphatic manner, that he did not consider that the fact of the book being found in the possession of the prisoner ought to weigh against him in their judgment; in fact, not at all.

After the evidence of Mr. Herring, of George Bates, and of Mr. Curling had been gone through, the Judge ordered the depositions of Mr. Bamford to be read. His lordship then proceeded to read the *visu vocis* examination of Mr. Bamford, and remarked that it was most important, because it appeared that the prisoner had the pills in his possession, and had an opportunity of changing them. Mr. Bamford gave it as his opinion, upon the certificate, that the deceased died from apoplexy. Now, whatever might have been the cause, all agreed that it was not from apoplexy, although that was stated on the certificate—it being necessary, by the provisions of a recent Act of Parliament, that the cause of death should be stated by the medical man in attendance upon the deceased. There was no reason, however, to doubt the good faith of Mr. Bamford. He had been mistaken as to the cause of the death of Cook, but had since done his best to rectify his error.

The deposition of Dr. Todd was then recapitulated by the Lord Chief Justice, and then that of Sir Benjamin Brodie, whom he spoke of as a "surgeon of great eminence, and to whose opinion much weight was deservedly due." The evidence of Dr. Daniel and of Mr. Solly, also at full length, followed; and that of Dr. Henry Lee, of Dr. Robert Corbett, Dr. Watson, Dr. James Paterson, and of Mary Keeley and Caroline Hickson, which latter witness testified to the symptoms in the cases of Agnes Sennett, at Glasgow, and Mrs. Smyth, of Romsey. The statements of Dr. F. Taylor and Mr. C. Bloxham, with reference to the last-mentioned case, were then detailed, and the Judge added—"Now, here was certainly a case of tetanus from strychnia; and the jury would say how far Cook's resembled it." The evidence of Mrs. Jane Witham, and of Mr. John Morley, with reference to the death of Mrs. Dove, at Leeds, was then recalled to the attention of the jury. Lord Campbell remarked:—

It is beyond all controversy that strychnia was not discovered in the dead body of Cook, but it is important to bear in mind that the witness Morley declares that, in cases where the quantity of strychnine administered had been the minimum dose that will destroy life, it is to be expected that the chemist should occasionally fail in detecting traces of the poison after death. That case of Mrs. Dove's is a very important one, because it is a case in which it is beyond all question that death was caused by strychnine, however administered. It is for you to determine how far the symptoms of this unhappy lady corresponded with or differed from those of Cook. You will remember that she had repeated attacks of convulsions. She recovered from several, but at last a larger dose than usual was given, and death ensued. With regard to the possibility of the poison being decomposed in the body, that appears to be a vexed question among toxicologists, and Mr. Morley differs on the point from other and, I doubt not, most sincere witnesses. The great question for your consideration on this part of the inquiry is, whether there may not be cases of death by strychnia in which, nevertheless, the strychnia has not—let the cause be what it may—been discovered in the dead body.

As to the case detailed in evidence by Mr. Moore, the Judge made the comment that "in this case the jury would likewise be able to compare the symptoms described as manifested in the last moments of Mr. Cook." His Lordship next called the attention of the jury to the evidence given by Dr. Taylor. Some portion of the evidence given by this gentleman was most important. It was relied upon for the prisoner, that there was no strychnia found in the body of the deceased, upon the analysis of Dr. Taylor and Dr. Rees; but according to

the evidence of those gentlemen, in two cases at least, where death was undoubtedly the result of strychnia, they could not, by all the skill they possessed, discover the presence of strychnia in the body of the animal after death. Whatever might be the value of the different theories that had been propounded upon this subject, it was perfectly clear upon the evidence, that in two cases at least, where poison had been administered to the animals, and death was the result, no strychnia was discovered in the bodies after death. His Lordship then called the attention of the jury to the fact of the discovery of antimony in the liver, spleen, and blood of the deceased, and to the evidence of Dr. Taylor that this antimony had, in all probability, been administered very shortly before the death of the deceased, and also to his opinion that, if it was administered in any considerable quantity at one time, it might have the effect of causing a constricting sensation in the throat similar to that described by Cook on the night of his illness at Shrewsbury. His Lordship then called the attention of the jury to the letter written by Dr. Taylor to Mr. Gardner, the solicitor at Rugeley, and which, it will be remembered, was opened by the postmaster, Cheshire, and the contents communicated to the prisoner; and he reminded the jury that at this time neither Dr. Taylor nor Dr. Rees was acquainted with the symptoms that had been exhibited by the deceased, but they were clearly of opinion that antimony existed in the body, and, according to their testimony, antimony in continued doses would be very likely to cause death. With regard to the letter written by Dr. Taylor to *THE LANCET*, he thought it would have been better if that letter had not been written; but it was for the jury to say whether the writing of that letter detracted from the credit that was due to his testimony. Also, with regard to the letter or article in the illustrated paper, he was of opinion that it would be better if it had not been written, but the jury would judge if it affected his credit. It appeared that Dr. Taylor consented to the publication of a portion of the article, but he struck out everything that related to the Rugeley cases. He should not comment upon the evidence of Dr. Taylor, because its importance was apparent—he proved the existence of antimony in the body of the deceased, and also that no strychnia was discovered after the death, in the bodies of certain animals that had, undoubtedly, been killed by that poison. Dr. Rees was the next witness. He confirmed the evidence given by Dr. Taylor, and proved distinctly that, in two out of four cases where the animals were destroyed by strychnia, no poison could afterwards be discovered. Upon this gentleman there was not even the imputation of having sent an indiscreet letter to *THE LANCET*, or having an indiscreet interview with the editor of a newspaper, and that gentleman spoke most distinctly to the important facts to which he had referred. The jury would judge from all the facts, whether antimony was not administered at Shrewsbury, and again at Rugeley; and although antimony was not the cause of death, yet it was evidently a most important ingredient of the charge against the prisoner, and of the evidence by which it was sought to be supported. Professor Brande also confirmed the evidence as to the discovery of antimony. The next witness was Professor Christison, a man of the greatest eminence and skill in his profession, and he corroborated, in all the material points, the other medical testimony. With regard to the point of the interval that elapsed between the administration of the poison and its effects becoming apparent, there was this important evidence, that if the poison had been mixed up with any resinous or insoluble material, its action would be very much retarded, and the symptoms would not come on so quickly; and Professor Christison also stated his opinion that there was no natural disease to which the symptoms exhibited by Mr. Cook could be referred. His Lordship then directed the attention of the jury to the evidence of Dr. Jackson, and this concluded the evidence for the prosecution.

TWELFTH DAY—TUESDAY, MAY 27TH.

Lord CAMPBELL proceeded with the charge. He said:—It appeared that in the middle of November Palmer was involved in pecuniary difficulties of the most formidable nature; that Cook, the deceased, by winning a race, became master of at least 1,000*l.*; and there is evidence from which the inference may be drawn that the prisoner formed the design of appropriating that money to his own use; that he did appropriate the money to the payment of debts for which he alone was liable, and, if Cook had survived, the fraud must have been exposed. Upon the important question of whether Cook died from natural disease or from poison we have the evidence of Sir B. Brodie and of other most honourable and skilful men, who say that in their opinion he did not die from natural disease, as they know of no natural disease which will account for the symptoms attending his death, and many say that they believe the symptoms exhibited by him were the symptoms of strychnine. All we know respecting strychnine not being in the body is that in that part of the body which was analyzed by Dr. Taylor and Dr. Rees they found none. Witnesses of great reputation, Dr. Christison amongst the number, have said where strychnine has been administered under certain circumstances they should not expect that it would be found; and you have the evidence of Dr. Taylor and Dr. Rees that, having experimented upon animals certainly killed by strychnine, no strychnine was to be discovered. It is asserted, too, that there are instances in which a greater space of time elapsed than in this case between the administration of the poison, if poison was administered, and the appearance of the symptoms.

Mr. Serjeant SKEE.—I do not think those instances were proved, my Lord.

Lord CAMPBELL.—There are instances in the books which it has been agreed on both sides should be referred to in the course of the trial—there are instances recorded by medical writers, and spoken of in the evidence I have read, in which a longer time has elapsed. With regard to no blood having been found in the heart, the result of the evidence seems to be, when death is produced by contraction of the respiratory organs, causing asphyxia, blood is found in the heart; but when it is produced by a spasm in the heart itself, the heart contracts, and the blood is expelled, so that after death no blood is found in it. He then drew attention to the evidence that the deceased had been tampered with by having something put into his brandy-and-water, broth, &c., the absence of any satisfactory explanation for his having bought strychnine, and the behaviour of the prisoner after the death. He said, the answer consists of two parts—first, the medical evidence, and, secondly, the evidence as to facts. With regard to the medical witnesses on the part of the prisoner, I must observe that, although there were amongst them gentlemen of high honour, consummate integrity, and profound scientific knowledge, who came here with a sincere wish to speak the truth, there were also gentlemen whose object was to procure an acquittal for the prisoner. On the evidence of Dr. Nunneley, he said, you recollect the manner in which he gave it, and you must form your own opinion as to the weight to be attached to it. Certainly he seemed to display an interest not quite becoming a witness in a court of justice, but you will give every attention to the facts to which he refers, and to the evidence he gives. He differs very materially in general opinion from several of the witnesses examined on the part of the prosecution,—especially in the statement that there is no extraordinary rigidity of body after death from tetanus, a point which is clearly of considerable importance in coming to a conclusion as to the cause of Cook's death. His Lordship next read Mr. Herapath's evidence, and at the close of it remarked,—Mr. Herapath is a very distinguished chemist, and, no doubt, says what he sincerely thinks. He is of opinion that where there has been death by strychnine, strychnine ought to be discovered. But he seems to have intimated an opinion that the deceased in this very case died by strychnine,

and Dr. Taylor did not use proper means to discover it. The learned Judge then read the evidence of Mr. Rogers, who agreed with Mr. Herapath as to the possibility of detecting the poison. There is no reason to doubt, his Lordship continued, that this witness does sincerely entertain the opinion he expresses. According to these witnesses, where strychnine exists, even mixed with impure matter, it should be discovered by skilful experimenters using the proper tests. Dr. Letheby also speaks sincerely, according to his experience; but I must say that cases of this kind seem to vary very much. There are cases which are, as this witness says, exceptional, and among them he mentions that of the lady at Romsey. The fair result would probably be that enough is not known of cases of this kind for us to be aware of all their varieties, and where there is a strong probability that strychnine has been administered, any peculiarity in the symptoms would not be anything like conclusive evidence to rebut that probability. The evidence of Mr. Ross on a case that occurred in the London Hospital, proved that case to be one of tetanus from wounds, of which there were no appearances on the body of Cook. We now come to the evidence of Dr. Wrightson, who, you will remember, had been a pupil of Liebig at Giessen, and is at present a teacher of chemistry in a medical school at Birmingham. This witness, who, I have no doubt, is a most scientific and honourable man, has stated that, assuming a man to have been poisoned by strychnine, he should expect to find traces of the poison in the stomach within five or six days after death; but he gave his testimony with that caution which is never so proper and becoming as in treating on questions of science. The evidence of Professor Partridge and of Mr. Gay was then read, and the case described by the last witness, the learned judge characterized as clearly one of traumatic tetanus. Dr. Macdonald had gone the length of introducing a new term of disease, "epilepsy with tetanic complications," and the jury would have to determine what weight they would attach to this evidence as compared with the medical testimony adduced by the Crown. Dr. Robinson thought that, putting aside the assumption of death by strychnia, Cook may have died of epilepsy; but, on being asked by the Attorney-General whether all the symptoms spoken to by Mr. Jones were not indicative of death by strychnia, he at once replied, "They certainly are." Dr. Richardson, who appears, said the judge, a very respectable witness, was next examined, and was the first to suggest the theory that Cook may have died of angina pectoris. You will have to determine whether Cook's symptoms were or were not consistent with death by strychnia. If they were not, your conclusion will be in favour of the prisoner; if they were consistent with death by strychnia, I do not say that on that fact alone you should find a verdict against him, but this I say, that it will be your duty to consider the fact in connexion with other evidence that has been brought before you, in order that you may come to a clear conclusion as to whether this was a death by strychnia, and, if so, whether the prisoner at the bar was the man who administered it to the deceased. After Dr. Richardson had given his evidence, Dr. Wrightson was recalled, and, in reply to a question put to him by the counsel for the Crown, stated that if a minimum dose to destroy life were given, and a long interval elapsed before death, the more complete would be the absorption and the less the chance of finding the poison in the stomach.

Mr. Serjeant SHEP—He added, my Lord, that he should still expect to find it in the spleen, liver, and blood.

Lord CAMPBELL—You are quite right; he certainly did say so, and you have done well in calling attention to the statement. The learned Judge then read, without comment, his notes of the evidence given by Catherine Watson and Oliver Pemberton, and added—This is the close of the medical testimony adduced on behalf of the prisoner.

The Court then adjourned for about twenty minutes, and it may be mentioned, as an instance of the tenacity

with which the human mind will cling to hope under the most desperate circumstances, that just as he was leaving the dock the prisoner threw over the bar, to one of the learned gentlemen engaged in his defense, a slip of paper, on which were written, in a clear and firm hand, these words,—“I think they'll find a verdict of not guilty.”

The evidence of Matthews, Myatt, Serjeant, and Jeremiah Smith was then recalled to the attention of the jury; and the facts of the proposal to insure the life of Bates for £10,000, Bates being at that time superintending the stables of the prisoner, and living in lodgings for which he paid only 6s. 6d. a week. Referring to Smith, the learned Lord remarked—Of his credit you are the judges. His evidence would be material as to what took place on the evening of Monday, because it would show that the pills which Cook took that night were taken as they were prepared by Bamford, and before the prisoner at the bar could have had any opportunity of substituting others for them. The evidence as to what took place on the Tuesday night remains exactly as it stood at the conclusion of the case for the Crown.

At the close of the charge—

Mr. Serjeant SHEP interposed.—The question which your Lordship has submitted to the jury is, whether Cook's symptoms were consistent with death by strychnia. I submit—

Lord CAMPBELL.—That is not the question which I have submitted to the jury; it is a question. I have told them, that unless they consider the symptoms consistent with death by strychnia, they ought to acquit the prisoner.

Mr. Serjeant SHEP.—It is my duty not to be deterred by any expression of displeasure; it is my duty to a much higher tribunal than even your Lordships', to submit what occurs to be the proper question. I submit to your Lordships that the question whether Cook's symptoms are consistent with death by strychnia is a wrong question, unless it be followed by this, “and inconsistent with death by other and natural causes,” and that the question should be, whether the medical evidence establishes, beyond all reasonable doubt, the death of Cook by strychnia. It is my duty to submit that. It is your Lordships' duty, if I am wrong, to overrule it.

Mr. Baron ALDERSON.—Is it done already. You have done it in your speech.

Lord CAMPBELL (addressing the jury).—Gentlemen, I did not submit to you that the question upon which alone your verdict was to turn was whether the symptoms of Cook were those of strychnia, but I said that that was a most material question, and I desired you to consider it. I said, that if you thought he died from natural disease—that he did not die from poisoning by strychnia—you should acquit the prisoner; but then I went on to say, that if you were of opinion that the symptoms were consistent with death from strychnia, you should consider the other evidence given in the case, to see whether strychnia had been administered to him, and whether it had been administered by the prisoner at the bar. These are the questions I again put to you. If you come to the conclusion that these symptoms were consistent with death from strychnia, do you believe that death actually resulted from the administration of strychnia, and that that strychnia was administered by the prisoner at the bar? Do not find a verdict of “guilty” unless you believe that the strychnia was administered to the deceased by the prisoner at the bar; but, if you believe that, it is your duty to God and man to find the prisoner “guilty.”

At the conclusion of this address from the Lord Chief Justice, the jury retired from the court at eighteen minutes after two o'clock.

The Jury re-entered their box at twenty-five minutes to four, after an absence of one hour and seventeen minutes; and the prisoner, who had been removed upon the retirement of the jury, was placed in the dock at the same moment.

The Clerk of the Arraignment asked, “Gentlemen of the Jury, are you all unanimous in your verdict?”

The Foreman.—We are.

The Clerk of the Arraignment.—How say you, gentlemen, do you find the prisoner at the bar "guilty," or "not guilty?"

The Foreman (rising, and in a distinct and firm tone).—We find the prisoner GUILTY.

The prisoner, who exhibited some slight pallor and the least possible shade of anxiety upon the return of the jury to the box, almost instantly recovered his self-possession and his demeanour of comparative indifference. He maintained his firmness and perfect calmness after the delivery of the verdict, and when the sentence was being passed, he looked an interested, although utterly unmoved spectator.

Sentence of death was then passed by the Lord Chief Justice. The prisoner was removed on the same night to Stafford, where the execution will take place.

Thus ended this extraordinary trial, which for a whole fortnight has occupied the Central Criminal Court, and absorbed the intense interest of all classes of the community.

THE PEACE AND MEDICAL OFFICERS OF THE ARMY.

OUR attention is naturally called to the prospects of the profession as far as they are affected by the recent war and the present peace. While war for a time produces a great demand for surgeons, it invariably throws, on its cessation, a vast number of competitors into the field of private practice. Nay, more, the supply often continues after the demand has ceased. Parents get into the habit of seeing a provision obtained by their sons through the road of the profession, and are only taught by bitter experience through what extraordinary means that provision was obtained. During the great French war, it was extremely difficult to obtain qualified men for our fleets and armies, and those practitioners who remained at home found little difficulty in obtaining practice from lack of competition. But peace came; numbers exchanged military for civil life, and, as the supply continued, there was an overstocking of the profession, of which many have had bitter experience. We anticipate a similar result in the present case, although not to the same extent, from the comparatively short duration of the struggle. The penurious system of understocking the army and navy during peace is sure to tell most injuriously in the end both on the profession and the national purse. There is such a superfluity of medical practitioners now in the East that many are left without patients.

Of the disgraceful blunders committed, and want of proper attention to the sick and wounded—want of necessary comforts and medicine, we believe the medical officers to have been guiltless; and the calamities which took place proceeded from those vices of the military system which leave the medical officers so entirely subordinate and dependent, that they cannot often procure medicines and necessaries from the hands of a purveyor. Look at the case noticed by *The Times*, correspondent as having occurred at Balaklava. We shall quote some of the passages, as they cannot be too much before the public:—

"*The Charity*, an iron screw-steamer, is at present in harbour for the reception of sick British soldiers who are

under the charge of a British medical officer, and that officer went on shore to-day and made an application to the officer in charge of the Government stoves for two or three to put on board the ship to warm the men. 'Three of my men,' said he, 'died last night from choleraic symptoms brought on in their present state from the extreme cold of the ship, and I fear more will follow them from the same cause.' 'Oh,' said the guardian of the stoves, 'you must make your requisition in due form, send it up to head quarters, and get it signed properly, and returned, and then I will let you have the stoves.' 'But my men may die meantime.' 'I can't help that, I must have the requisition.' 'It is my firm belief that there are men now in a dangerous state whom another night will certainly kill.' 'I really can do nothing. I must have a requisition properly signed before I can give one of these stoves away.' 'For God's sake, then, lend me some; I will be responsible for their safety.' 'I really can do nothing of the kind.' 'But consider, this requisition will take time to be filled up and signed, and meantime these poor fellows will go.' 'I cannot help that.' 'I'll be responsible for anything you do.' 'Oh, no; that can't be done.' 'Will a requisition signed by the P.M.O. of this place be of any use?' 'No.' 'Will it answer if he takes upon himself the responsibility?' 'Certainly not.' The surgeon went off in sorrow and disgust. Such are the rules of the service in the hands of incapable and callous men."

The writer proceeds to give other instances of the sort. We could mention cases of the kind of more recent occurrence. A first-class staff-surgeon at Scutari heard that the Sultan had sent a supply of tobacco for the use of the troops. He wished to let some of the invalids who were going home, patients of his, have some, and sent a requisition accordingly. After being tossed from post to pillar, the request was refused. The surgeon applied to Miss Nightingale, and got the tobacco. The Sultan's tobacco will probably rot in store.

The first remedy for such a state of things should be, then, to give medical officers of a certain rank power to compel the delivery of such drugs and necessaries or comforts as they may require on their requisition, or leave to the purveyor the responsibility, in very extreme cases, of declining the request. The same want of power pervades the whole system. Who does not recollect the attempt made to inculcate Dr. Andrew Smith for mischiefs which he would have prevented, had his excellent regulations and advice been attended to by Government?

We shall put our views of what is required in the Army Medical Department under three heads: first, more power to the medical officers; second, increased rank and allowances; and in the third place, we claim for them a larger share in those rewards and honours which are awarded to other officers.

On the first head, we have said enough; but the case hardly requires to be proved. With regard to the rank and allowances, one further step of rank should, in our opinion, be given to every medical officer in the army, in order to render them more independent and of weight, after a certain period of service. Into the details of such alterations, it is not necessary to enter at present. The following considerations generally should be kept in mind:—The medical officer does not, it is true, purchase his commission, but he gives an equiva-

lent in the shape of his professional education. If not exposed to all the dangers of his brother officers in the field—and he is exposed to several of them—he is exposed to other and perhaps worse dangers from disease; and at the end of a long series of trials, he will see his former friend retire as a general, a baronet, or a peer, adorned with orders, while he walks out of the army a staff-surgeon of thirty years' service, with sixteen shillings a day. That is the extent of his ambition, for inspectors of hospitals must be rare. Then, again, look at the bribes before purely military officers—appointments of all kinds—governorships, secretariats, &c.

The want of proper appreciation of the services of medical officers is shown in many ways, in none more so than the conferring of decorations. A few orders of the lowest grade of the Bath have been lately distributed with a niggardly hand. In point of fact, medical officers are entitled to double distinction—first, as soldiers; and, secondly, as professional men. The surgeon of the 7th Hussars who rallied some of the Guards on the heights of Inkermann, gallantly led them to the charge, routed the Russians, and saved the life of the Duke of Cambridge, was entitled to distinction as a soldier; but are not such men as the late Dr. Jackson, Dr. Trotter, or Dr. John Davy, entitled to distinction for their services in the army in a professional and scientific point of view? "*Palmam qui meruit ferat*" was the happy motto selected by Lord Melville for Lord Nelson's escutcheon, after the Nile, in allusion to the plume of honour sent by the Sultan. We are convinced that honorary distinctions and decorations conferred more freely on medical officers, for all kinds of merit, would lead to a higher professional feeling in the army, and materially raise the medical officers in the estimation of their brother soldiers.

The trial that has for twelve days engaged the anxious attention of the Court, that has riveted with irresistible fascination thousands of eager spectators to the Old Bailey, that has filled the teeming columns of the press almost to the exclusion of every other topic, that has been the theme of every man's discourse, is at last decided. Piercing through the cloud of evidence, scientific and moral, that had been gathered together from every part of the kingdom, partly with a view to illustrate the great question at issue, and partly with a view to obscure it, the jury have arrived at a positive conclusion, and pronounced the verdict of "*GUILTY*!" It is now our duty to break that silence we have imposed upon ourselves in order not to embarrass the judgment or anticipate the decision of the jury. As representatives of the interests and feelings of the medical profession, we find little occasion for animadversion upon the course adopted by the Court, the Crown, or the counsel for the defence, in their conduct in relation to the scientific evidence adduced. We feel ourselves, on the contrary, especially called upon to express the sincerest satisfaction with the conduct of the law-

officers of the Crown. They have not adhered with over-scrupulous formality to the course marked out—although it can never be sanctioned—by precedent and custom, of seeking by every means to ensure the conviction of the prisoner. They appear to have been animated by a conscientious desire to bring before the jury everything that could throw light upon the case, and everything that fairness to the prisoner could demand. It may be said, with truth, that seldom, perhaps never, has a criminal case been so thoroughly elaborated, and so profusely illustrated in every point involving scientific discussion, as this. The long period that has elapsed between the finding of the coroner's jury and the trial, and the removal of the trial to the metropolis, where every facility abounded, have afforded ample and unusual opportunities for perfecting the defence. The counsel for the prosecution have not reproached themselves with having too rigorously, or without due regard to justice, pressed the case against the prisoner; nor can the advocates of the prisoner be blamed for remissness or want of skill, with perhaps one striking exception, in conducting the defence. The two speeches of Sir ALEXANDER COCKBURN, the Attorney-General, were unrivalled specimens of forensic eloquence, moderation, and ability. The dignified and just conduct of the Bench, and the unexampled patience of the jury, deserve all praise. Nothing has been wanting to ensure the discovery of the truth, that patience, skill, learning, and the love of justice could supply. We venture to say that no one accustomed to balance evidence will question the righteousness of the verdict. The jury were called upon to decide in a case of proverbial difficulty. They saw medical witnesses ranged on either side, some affirming that the symptoms which marked the close of Cook's life were the result of the poisonous action of strychnia, some hesitating to assign these symptoms to any specific cause, some with confidence regarding them as evidence of natural disease. Every element of confusion was gathered together in order to perplex the minds of the jury. Was it strychnism, convulsive disease, idiopathic tetanus, traumatic tetanus, epilepsy, apoplexy, angina pectoris, or some disease not hitherto described, and not explicable by medical science? All these interpretations found their exponents. In addition to this complication of evidence, there was the absence, or unproved existence, of the poison in the body—a difficulty all the more embarrassing, because it was established on the testimony of men of the most undoubted skill that strychnia is of all poisons the easiest of detection, and that, where present, it ought to be found.

There can be little doubt that had it not been for the remarkable force, extent, and consistency of the general evidence, the jury might have shrunk from the responsibility of pronouncing that verdict which, in the ordinary course of the English law, is absolute; which denies, at least to those who utter it, the opportunity of reversal; and which leaves them but the torment of vain repentance under the consciousness or the apprehen-

sion of error. It is impossible that science can speak to the unskilled in language so intelligible and distinct as she does to her chosen disciples. It could not be expected that twelve men, relying upon their general knowledge and that indefinable, lawless, and treacherous faculty, "common sense," should estimate accurately the value of the medical evidence laid before them. If they sought to be guided by those scientific witnesses whose names carry the greatest weight of authority, they might err; if they committed their judgment to the testimony of the greatest number, they might still more probably err; if they sought to unravel the scientific questions before them by the application of their own knowledge and common sense, they were almost sure to err, or to go right only by accident.

It is fortunate, then, that the mass of general evidence was so strong and compact, and so secure against misrepresentation or the attacks of legal ingenuity, as to lead almost by itself to one inevitable conclusion. By whatsoever process the minds of the jury may have been directed to their verdict, there are few, we repeat, who must not feel an inward conviction that their decision is right. The requirements of public justice will be amply satisfied as far as this particular case is concerned. But the general interests of society and the rigid laws of science call for exactitude. Another case might occur in which the moral evidence might be defective, and in which the means of arriving at the truth might depend almost solely upon the precision and demonstrability of the medical evidence.

It therefore becomes our duty to examine this case in a light and after a method which neither prosecution, defence, court, nor jury could venture to follow. We will submit the question as to the cause of the death of JOHN PARSONS COOK to the test of scientific research alone. We propose to examine whether that test cannot return a clear and unmistakable answer, abstracted from, and unaided by, any collateral circumstances or inferences. We believe that science can return such an answer. It is of the utmost moment that this should be clearly understood by the general public. It is, perhaps, equally important that the medical profession should calmly review the case from this point of observation, that we should endeavour to ascertain how much is fixed and acquired by science, and what points remain for future inquiry and doubt.

The two leading questions, around which several secondary ones, of not less scientific import, attach themselves, are the following:—

1. Are the symptoms reported to have occurred in JOHN PARSONS COOK, during the last forty-eight hours of his life, so distinct and pathognomic in character that they can be assigned absolutely to strychnism, to the exclusion of tetanus from disease, injury, or any other cause?

2. Assuming that death was caused by strychnic tetanus, ought distinct evidence of the presence of strychnine to have been discovered in the body?

If the first question could be answered absolute-

ly in the affirmative, it might, for the immediate purposes of the case which has given rise to this discussion, be superfluous to investigate the second. The all-important question is of course whether or no Cook died from the poisonous action of strychnine; and in discussing this, we set aside altogether the question as to how the strychnine came into his system. In inquiries of this kind, the symptoms observed during life, and the changes observed in the tissues after death, must always occupy a pre-eminent rank as evidence of the cause of death. Were we to distinguish between the physician and chemist, more importance must be attached to the first than to the second. The mere finding of a deadly poison, such even as arsenic, prussic acid, or strychnine, in the contents of the stomach or in the tissues after death, cannot be conclusive evidence that the subject died from the poisonous action of the substance found. Chemical evidence can only be complementary and corroborative of the medical and pathological evidence. Chemical evidence must therefore occupy the second rank. It is true that in inquiries upon which rest the life or death of a prisoner we are anxious to draw light from every source, and to heap up evidence of every kind. Juries and the public generally always look for the material demonstration of the poison in the dead body. They are disposed to overrate the importance of this demonstration, and even to place it before the evidence derived from the observation of the symptoms and the morbid appearances. This tendency has been exhibited in the trial which has excited so much public interest, notwithstanding the acknowledged failure of the *chemical* portion of the inquiry so far as strychnine was concerned, compelled the Crown to strengthen its case by accumulating evidence to show that the symptoms observed proved the existence of strychnine by its physiological action, and although the jury finally arrived at a verdict in the absence of that physical demonstration.

The critical analysis we have marked out must necessarily occupy a considerable space. We wish to present it entire, and therefore defer it until our next publication.

SEVERAL urgent appeals have been addressed to us, entreating that our critical analysis of the medical evidence in the case of WILLIAM PALMER may be withheld at present from publication. It appears that the friends of the convict have addressed a memorial to the Crown, praying that a Commission may be appointed for the purpose of instituting a new series of chemical experiments, and that the sentence passed on PALMER should be respited until after the results of the contemplated experiments have been ascertained. Under these circumstances, we feel it to be our duty, although the article is in type, and extends to a considerable length, to refrain from publishing our examination of the medical evidence until after the fate of PALMER shall be finally decided.

Miscellaneous Correspondence.**SHOULD STRYCHNIA BE EMPLOYED AS A MEDICINE?***To the Editor of THE LANCET.*

SIR,—That there is and always will be a fashion in physic no one will deny. The number of remedies once deemed indispensable, and that found their way into almost every prescription, that now slumber unasked for on the shelves of the apothecary, fully attest the truth of this observation; and was this fashion confined to the administration of remedies which, whilst they derived their ephemeral reputation from their combination with others of known action and utility, were under no circumstances fitted for the purposes of crime, there would be but little harm in it; but if the administration of such a deadly poison as strychnine rests on no better foundation—if all the effects attributable to it, except its fatal one, are attainable from other and safer agents, it becomes a question whether it should not be erased from the pharmacopœia, and its presence in the shops of the druggists rendered unnecessary. The simple fact of strychnia being a deadly poison, and of rapid fatality, is not, I admit, sufficient reason for this exclusion. Many of the medicines used in the healing art are so; but then the nature of their operation is such, that, if arrested, or guided by the hand of science, the most beneficial results may be obtained from them; but in the action of strychnia, this is not the case: there is not one of the effects that it exhibits in its rapid career that can be made thus available.

The peculiar tetanic spasm that it produces, led its discoverer, I believe, to anticipate from it a remedy for paralytic affections. Had this been the case, its retention in the pharmacopœia might be justified, but I fear that the profession has found this to be a fallacy. That it may, in very minute doses, in combination with other agents, produce some beneficial effects in the functional derangements of certain organs, may be possible, though I am inclined to doubt it; but these effects are equally attainable from other medicines, and certainly do afford no excuse for its use. The frightful disclosures that our various courts of justice are daily bringing to light with regard to it—the careless manner in which this deadly poison has passed from hand to hand—the evidence as to its dreadful effects, and the silence as to its utility, all tend to make this a subject worthy of the attention of the profession, if not of the legislature itself. The virtues of such a remedy should be clear indeed, to compensate for the danger attendant on its use.

If, however, it be found impossible to do away with it as a medicine, surely it might be kept in such a state of solution that, whilst it left it a remedy in the hands of the physician, would unfit it for the deadly purposes of crime.

I am, Sir, your obedient servant,
J. NICHOLS, F.R.C.S.

Savile-row, May, 1856.

RETIRING PAY TO THE ACTING ASSISTANT-SURGEONS OF THE ARMY.*To the Editor of THE LANCET.*

SIR,—May I be allowed the favour of a place in your valuable journal, in order to draw the attention of the army assistant-surgeons to their position, now that peace is established, and the army about to return. Those of us who have not been either so fortunate as to be sent to the seat of war, or to get commissions, will, in proportion as the army returns, be sent to the right-about; and at present nothing has been said about retiring pay. Now, as the civil surgeons are allowed a year's pay at two guineas a day, and the militia surgeons the same at their rate of pay, it is but fair that we should have a similar allowance, and I am sure that the Government only need to be reminded of our claims to treat us with equal liberality. As we are all scattered about with our various charges, and are thus prevented meeting together, I would suggest that every one so disposed should write to Mr. Layard, as a member of Parliament well acquainted with the whole subject of the war, requesting him to ask the question of the Secretary for War.

I am, Sir, your obliged servant,
ACTING ASSISTANT-SURGEON.

June, 1856.

TREATMENT OF ASCARIDES.*To the Editor of THE LANCET.*

SIR,—In answer to your correspondent, "S. S.," permit me to state that for upwards of twenty years I have successfully treated adults affected with these troublesome animals by administering a wineglassful of the infusion of quassia half an hour before breakfast, dinner, and supper; but the plan must be pursued for two months without intermission.—I am, Sir, yours, &c.,

W. MARSDEN, M.D., Surgeon.
Lincoln's-inn-fields, May, 1856.

To the Editor of THE LANCET.

SIR,—The best treatment I have found for ascarides has been an injection of half a pint of lime-water every second or third night, clearing the bowels well out the following morning with a dose of compound scammony powder.

I am, sir, yours, &c.,
H. G.

Foreign Department.**A Case of Chronic Glanders.**

M. CAZIN, of Boulogne, lately communicated the following case to the Medical Society of Lyons:—

A livery-stable keeper, aged thirty-eight years, scratched his left thumb, between the nail and the pulp, on the 3rd of December, 1854, whilst cleaning the gutter of a stable containing glandered horses, which latter had been attended by himself for some time. He had put his hand into the gutter which contained urine from the diseased horses.

On the morning of the second day after the infliction of the wound, the patient had rigors and flushes; the thumb became inflamed, painful, swollen, and assumed a reddish-brown tint, which latter soon reached to the upper part of the inferior third of the forearm. Suppuration came on in the wound, and raised the nail.

Three days afterwards, a swelling, of the size of a pigeon's egg, was noticed on the fore-arm, exactly where the inflammatory blush stopped abruptly. The feverish symptoms at the same time ran very high.

On the sixth day, when it was intended to open the abscess, the latter had disappeared; but severe pain was experienced in the left foot, which swelled rapidly to above the malleoli, and presented along the dorsum an erysipelatous blush. A medical man who had been sent for at the beginning of the attack, put fifteen leeches on the foot, followed by soothing applications, which measures gave relief.

On the ninth day, an abscess, which had formed on the dorsum of the foot, was largely opened; upon which a great quantity of sanguineous, thick, brownish pus escaped. The irritation pervading the whole organism continued, though the feverishness was abating. The discharge was abundant and fetid.

At the end of the month, twenty-seven days after the original injury, an abscess formed, without any previous inflammatory symptoms, on the lower part of the right leg. It was about the size of a small hen's egg, and when opened gave exit to a black clot and some pus similar to the matter freed from the left foot, but a little more fluid. The wound closed in a few days, and several small abscesses successively formed in various parts of the body; they were all opened, and closed rapidly. The wound, however, on the dorsum of the left foot continued to suppurate, became larger and deeper, and soon took the appearance of an ill-conditioned sore. The foot remained cedematous, and the patient, who had kept his bed from the beginning, was becoming very weak.

Thus passed the first six weeks, the medical attendant having confined his prescriptions to cooling drinks and soothing applications. M. Cazin was now called in (January 17th, 1855), and found the patient extremely low, and pining at the idea of having lost, in one year, sixteen horses from glanders, and at the fear of leaving his wife and children in want. The sore on the left foot was two inches long and one wide, and presented all the characters of deep, irregular, unhealthy-looking ulcers. The smell emitted was very bad, and the room where the patient was lying being small and ill ventilated, the place presented a deplorable accumulation of miasmata.

He was removed into a larger room, and M. Cazin ordered him to be rubbed all over with camphorated spirits; and gave internally quinine, aloes, and hyoscyamus in pills, and iodide of potassium in solution. Wine mixed with infusion of hops was also ordered. The sore was dressed with mercurial ointment, with which frictions

were also made along the tumefied portion of the foot. Generous diet, in keeping with the debilitated state of the patient's digestive powers.

The bowels, which had been obstinately bound, were freely opened by the pills; and as the iodide did not agree with the stomach it was discontinued, and cod-liver oil substituted. The ulcer improved; but as the suppuration continued sanious and fetid, fomentations with an infusion of elder-flowers and solution of acetate of lead were used. Into the wound a pledget of lint was introduced, spread with storax and dusted with a powder composed of sal ammoniac, bark, and camphor.

Great improvements followed the use of these remedial measures; but two months after M. Cazin had begun his attendance, a hard swelling appeared on the calf of the left leg, the whole of the former being invaded in less than eight days. The tumour was indolent, and soon assumed the same colour as the swelling on the dorsum of the foot. In about a fortnight, tubercles appeared upon it; they broke, and gave exit to reddish-brown purulent matter. The skin around the ulcers thus formed was undermined, and suppuration continued. The patient's general state was however improving, and he went on taking the cod-liver oil, and the pills when necessary.

Six months after the beginning of this treatment, the ulcer of the foot was almost healed, and the swelling gone; the patient walked a little, but with difficulty. The tumour on the calf of the leg remained, in the meantime, in complete *statu quo*; and as this circumstance proved that the chronic glander affection was persisting, M. Cazin resolved on trying aconite.

On the 24th of June, two grains of the alcoholic extract were prescribed, made into four pills, to be taken in one day. The next day the patient took two and a half grains; and as no physiological effect was noticed, three grains were now given, also in four pills. On the next day, gentle diaphoresis of four hours' duration was excited, and the patient stated that since the beginning of his illness he had not experienced such a laxity of skin. The extract was used in the same doses, and with the same effect, until the 5th of July, when the dose was increased to three and a half grains per diem. No poisonous effects of aconite were noticed. The tumour of the calf was less red and not so hard, but remained of the same size.

From the 15th of July to the 1st of September the tumour became paler, and the little sores upon it showed a healing tendency, which was favoured by the application of nitrate of silver. As the nightly diaphoreses had somewhat diminished, and the patient was in no ways weakened by them, the extract was carried to four and three quarter grains a day, in five pills, one of which was taken in the course of the night. On the next day the patient's vision was a little dimmed, and he experienced some giddiness; the same dose was nevertheless continued from the 1st to the 20th of September, and these symptoms reappeared, only to a limited extent, for three or four days.

During this time, the tumour diminished to one fourth of its original size, the skin became normal, and the little ulcers healed. The indurated tumour then remained stationary, although the extract was continued in the same doses to the 20th of October. Painting with tincture of iodine was now had recourse to, and dispelled the hardness in the space of one month. At this period the patient resumed his usual occupations, and was quite restored to health, which had continued good for five months after M. Cazin's final visit.

We consider the facts bearing upon the pathological phenomena of glanders, and upon the action of aconite, to be particularly worthy of record.—*Gazette Médicale de Lyon.*

Helminthic Enteritis complicated with Intestinal Hemorrhage, and Symptoms of Strangulation.

In this case, a boy, six years of age, died in the space of three days, with symptoms which did not allow of a clear diagnosis. On the 18th of March, 1856, M. Villemain, the usual attendant of the family, was called to see the boy, who had suffered from cough for a few days; the latter had had some ipecacuanha syrup, which did not relieve him; and he began to complain of pain in the umbilical region. No particular treatment was adopted, and the child was pretty well on the next day, when the continuance of the colicky pains led the medical attendant to suspect that they were owing to fresh paint in a lower room of the house.

The child played about on the second day, and ate heartily; but the night from the second to the third day was very bad; and when the patient was seen in the morning, the symptoms were extremely distressing. The face had taken a choleraic aspect; vomiting of greenish matter was very frequent, and three *ascarides lumbricoides* had been found in the fluid thus ejected from the stomach. The abdomen was tympanitic, painful on pressure, and the pulse small and sharp. There had been a few slight alvine evacuations tinged with blood, and the patient was very restless, and icy cold. He was put into a warm bath, after which a large linseed-meal poultice was placed on the abdomen; he had emollient drinks, sinapisms to the legs, cold compresses on the forehead, an enema, with a little olive oil, and small doses of a mixture, in which the principal ingredient was ether.

In the middle of the day M. Grand was called in consultation, and found the child in such a desperate state, that he *primæ facie* suspected cholera, intussusception, or accidental poisoning. The patient was lying on his right side, with his knees drawn up to his chest; he, however, put out his tongue, which was clean; the face was red and injected, but cold, as well as the rest of the body, which latter was quite cyanosed; pulse small and sharp; abdomen swollen and painful on pressure. The child had just had severe hæmorrhage

from the bowels, the fluid ejected deeply tinged with blood, filling two-thirds of an ordinary night vessel. These symptoms had hardly been ascertained by the two physicians in attendance, when the child expired.

On a post-mortem examination, the organs contained in the abdominal cavity were found in a normal condition; except the small intestines, especially the ileum, which were considerably distended with gas, and highly congested. One portion of the ileum presented to the finger a solid mass, which was carefully exposed, by cutting open the bowel high above it. The intestine was quite stopped up by a bundle of *ascarides lumbricoides*, so glued together that the whole conglomeration was raised by taking hold of one of the worms. There were about eighteen of the largest kind, a few straggling ones having been found above the spot. The mucous membrane was softened and riddled with ulcers, the largest of which was the size of a shilling. By means of a magnifying glass, the open mouths of the vessels which had poured out the blood could be distinguished.—*L'Union Médicale.*

New Inventions

IN AID OF THE

PRACTICE OF MEDICINE AND SURGERY.

CAPRON'S VENTOUZE, FOR CUPPING AND DRY CUPPING.



This very useful and ingenious instrument is the invention of M. Capron, of Paris, and is another instance of the valuable adaptation of India-rubber to our surgical appliances. The India-rubber ball is an exhausting medium, which may be regulated to any required power by the hand of the operator. By turning the screw, the ball can be taken

away, leaving the glass in active operation upon the part. The Ventouze is constructed for cupping, dry cupping, leech-bites, and as a breast-reliever; different glasses being added to fulfil these various purposes, which are accomplished most perfectly. Messrs. Weiss and Co. are appointed the London agents.

THE SANITARY CONDITION OF THE BRITISH ARMY IN THE CRIMEA,

FOR THE WEEK ENDING APRIL 26TH.

THE Inspector-General states that the health of the army continues remarkably good, and only five deaths from disease have occurred in the whole army serving in the Crimea during the week; two from fever, two from phthisis, and one from inflammation of the lungs.

A casualty occurred out of hospital, in a man of the Right Siege Train, who had been absent from his quarters all night, and was found near the Tchernaya at the point of death in the morning. His clothes were wet, but there were no marks of violence on his person, and his medal and two sovereigns in money was found in his possession.

Four deaths took place in the Land Transport Hospital; three from fever, and one from disease of the lungs; and a man was killed by the kick of a mule out of hospital.

The general health of the corps is improving; but there is an apparent increase of sickness this week from the admission of 200 cases of itch, in men who have been attending on mangy animals.

Two casualties have occurred in the Army Works Corps, one under the head of rheumatism, and the other a case of suicide; a death from fever in the Commissariat branch of this corps occurred in the general hospital in camp.

Large fatigue parties have been employed during the week in collecting expended shot; and six men have been injured, two of them seriously, by the explosion of percussion shells that had fallen without bursting when fired; but every precaution has now been taken to prevent such accidents in future, by placing artillerymen at different points to warn the men of the danger of carelessly handling such missiles.

At Kertch, only three per cent. were sick, and no casualty had occurred during the week ending 12th April.

One death had occurred in the Cavalry Division stationed on the Bosphorus during the same week, and the ratio of sickness in it was five per cent.

At Smyrna, though the sickness does not amount to more than 3.78 per cent., four deaths have occurred out of a strength of 1694, which is within one of the mortality of the whole British army in the Crimea.

Three deaths occurred in the General Hospital at Scutari, and one in the General Hospital at Renkioi, making a total mortality of twenty-one during the week from disease, and two from accidents out of hospital.

In the Crimea, the ratio of admission to strength

has been 1.91 per cent.; death to strength, 0.02; sick to healthy, 3.39.

Assuming the force of all denominations to be (exclusive of officers) 70,000, the ratio of admissions to strength would be 2 per cent.; deaths to strength, 0.03; and sick to healthy, 4.92.

WEEK ENDING MAY 3RD.

The same satisfactory state of health continues to prevail in the army. A decrease both of sickness and mortality has taken place which was not anticipated, nor can it be reasonably calculated that the present favourable state of things should continue much longer.

Ophthalmia continues prevalent in some few corps, and there has been an increase of twenty-four cases during the week. It is difficult to assign any particular local cause for this disease in these regiments, as they are placed under precisely the same circumstances regarding duty, diet, and accommodation as the rest of the army; but the disease has prevailed in all these regiments on former occasions.

As regiments embark, more space in barracks will be given to the men, and by that means, daily inspections, and other sanitary arrangements, it is to be hoped the disease will be checked, if not eradicated. But it is at all times a very troublesome and tedious complaint. The General Hospital at the monastery is now devoted almost exclusively to ophthalmic cases, and nearly the whole of them are progressing favourably. In four cases vision will, I fear, be more or less impaired; but it is difficult to prevent occasional occurrences of the kind when the disease attacks scrofulous subjects.

The health of the Land Transport Corps is more satisfactory this week, and only three deaths have occurred,—namely, two in the Head-Quarters Hospitals of the corps, and one in the hospital of the battalion attached to the 3rd Division. A death occurred in the Army Works Corps, which reduces the mortality in the army in the Crimea to five,—and of these, one died from delirium tremens.

The troops at Kertch and on the Bosphorus have been remarkably healthy, and only twelve deaths have occurred in the whole army,—namely, nine in the Crimea, two in the General Hospital at Scutari, and one at Kululea.

In the Crimea, the admissions to strength have been in the ratio of 1.79 per cent.; death to strength, 0.01 per cent.; sick to healthy, 3.55 per cent.

ALCOHOLIC STATISTICS.—During the past year 6,228,856 gallons of proof spirit were entered for home consumption in Ireland, against 8,440,734 during the previous year, 1854, and 8,137,362 in 1853.

DR. F. W. HAEELAND, the able author of the standard work "On the Action of Medicines," is a candidate for one of the assistant-physicianships vacant at King's College Hospital.

THE LANCET.

Journal of Medical, Surgical, and Chemical Science and Practice, Criticism,
Literature and News.

MR. WAKLEY, M.P., EDITOR.

J. HENRY BENNET, M.D., J. WAKLEY, JR., SUB-EDITORS.

IN TWO VOLUMES ANNUALLY.

VOL. II.

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No. 2.

A Course of Lectures
ON THE
THEORY AND PRACTICE
OF
OBSTETRICS.

By W. TYLER SMITH, M.D.,

PHYSICIAN-ACCOCUCHEUR TO ST. MARY'S HOSPITAL, AND LECTURER ON MIDWIFERY AND THE DISEASES OF WOMEN IN ST. MARY'S HOSPITAL MEDICAL SCHOOL.

LECTURE XV.

**SUPER-FETATION.—EXTRA-UTERINE GESTATION.—
MISSED LABOUR.**

GENTLEMEN,—The term **SUPER-FETATION** is applied to cases in which one gestation having commenced, a second supervenes upon it during the continuation of the first. We must, before approaching this curious subject, separate certain cases which simulate super-fetation to a certain extent, but are altogether distinct from it. For instance, we referred in the last lecture to cases in which a woman may be delivered of a blighted ovum, and carry on a second foetus to the full term; or in which a gravid woman may produce a full-grown foetus and a shrivelled ovum at the natural time of parturition. Cases are also met with, in which a patient is delivered of two children at the same time, one of which is considerably more developed than the other. Such cases are termed retarded twins, and it is doubtful whether in the case of twins, conceived at the same time, the retarded ovum may be retained in utero beyond the natural term. The instances here severally referred to, are altogether different in principle from cases of super-fetation, inasmuch as they depend not upon a variation in the time of conception, but upon a difference in the time of development or expulsion, apart from any variation in the time of fecundation.

There are several conditions under which super-
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fetation may take place; and as the fecundation in twin cases has an interesting relation to this subject, I may mention the chief circumstances under which twin impregnation occurs. It is probable that in many cases of twin pregnancy the second ovum has been fecundated by a coitus occurring subsequently to the first impregnation, and such cases form the most simple instances of super-fetation. But this is not always the case. In rare instances, in twins, the placenta is found to be single, and I would suggest that these are cases in which one ovule has contained two yolks and two germinal vesicles, just as we sometimes see in birds, one egg with a double yolk, producing two individuals. In these cases the twin impregnation must occur at the same time. More frequently the placenta and membranes are double, but the placenta are placed side by side, and in these cases two separate ova have probably descended from the same ovary, and have been impregnated either at the same or at different times. In some cases the placenta are attached to opposite sides of the fundus uteri, the inference being that the ova have descended from the two ovaria, but they may have been impregnated by a single coitus or otherwise. In all these cases, impregnation occurs within a short space of time, and the same preparation of the uterus serves for the twin fecundation. We have the positive proof that twin ova may be impregnated at different times, in the history of cases in which a white woman is delivered of a white and of a black child, or in which a black woman produces a black and a mulatto, at one birth. In the slave states of America, cases of the latter kind are so common, as to place the matter beyond doubt. Numerous authorities, including Buffon, Dewees, Dunglison, Beck, and others, testify to the facts, that a white woman married to a white man, and admitting a negro to her embraces after intercourse with her husband, may give birth to a white and a mulatto child at the same time, or that a negress, receiving a white man under similar circumstances, may

produce a black and a mulatto infant. In animals which produce many offspring at a birth, it is not at all infrequent for the young to be the product of intercourse with different males. Dr. Henry, in his excellent essay on Super-fœtation, quotes a case which occurred in the Brazils, where the indigenous race is copper-coloured, but where there are negroes and whites, in which a Creole woman had three children at a birth, of three different colours, white, brown, and black, with all the features of the respective races.

Cases are on record, in which women, the subjects of extra-uterine gestation, have conceived anew, and borne children, while the extra-uterine fœtus has remained in the abdomen. M. Clét, of Lyons, relates a case which had fallen under his own observation, in which a woman died suddenly, and upon dissection, an extra-uterine fœtus of five months was found in the abdomen, while a fœtus of three months occupied the uterus. Cases of abdominal gestation, in which the fœtus becomes enclosed in a cyst, and the woman bears other children, are less uncommon than the above. Dr. Montgomery details the particulars of an interesting case, in which two years after an extra-uterine gestation, a woman conceived, and bore three children in succession, while the extra-uterine fœtus remained encysted. Many other writers have recorded similar cases.

In another variety of super-fœtation, the uterus preserves the form met with in the lower animals, being bi-cornual or bi-corporeal, and a conception occurs first in one side of the organ, and after a time in the other. It has been observed that in cases of this kind, when one uterus has received an ovum, the other cavity develops a deciduous membrane, a circumstance which has been urged by Dr. Lee and others against the probability of the occurrence of pregnancy in a double organ at two different times. Numerous apparently unexceptionable cases are, however, on record. The museum of the University of Modena contains the uterus of a woman who died of apoplexy in 1847. This woman had borne many children, and on one occasion she became pregnant, and was delivered on the 15th of February, 1817, of a child, apparently at the full term. The abdomen diminished on one side only, after her labour, and on the 14th of March, she gave birth to a second mature child. This case was regarded at the time, by Professor Bignardi, as one of super-fœtation, with double uterus, and this diagnosis was confirmed on a post-mortem examination, thirty years afterwards, by Dr. Generali. Of the authenticity of this case there can be no doubt. It may be urged that it was only a case of retained and retarded twin; but the probabilities are against such a supposition, and numerous confirmatory cases have been observed by Cassan, Voigtel, and Boivin, in which a considerably longer time occurred between the birth of the two children. It is worthy of remark, that in cases of double or divided uterus, the two portions of the organ show signs of imperfection. Abortions are very frequent in such cases, and delivery is difficult from the imperfect

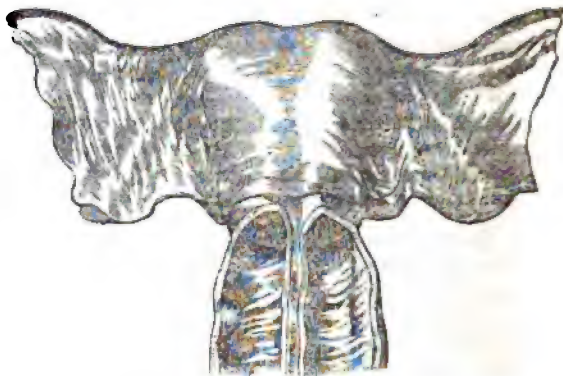
action of the uterus. The term double uterus is not strictly correct, because the organ is single, but divided into two cornua. In the early condition of the human embryo, the uterus is always divided, and the so-called double uterus is merely the more or less perfect persistence of the embryo type. Occasionally the vagina is also doubled or divided.

FIG. 63.



Uterus in which the cavity is divided by a septum the vagina being single.

FIG. 64.



Bifid condition of the uterus and vagina.

But in addition to these forms of super-fœtation, other cases are on record, in which the uterus was proved to possess a single cavity. In one related by Professor Eisenmann, of Strasbourg, a woman was delivered of a second child 140 days after the birth of the first, both having been mature. She subsequently bore many other children, and after her death the uterus proved to be single. Unless we discredit this and similar cases recorded upon good authority, we must conclude that in addition to the fecundation of two ova at short intervals by two male parents, the occurrence of intra-uterine pregnancy after the commencement of extra-uterine gestation, and conception in a second uterus during the course of gestation in a first, pure and simple cases occur, in which, while a single uterus is occupied by one ovum, a second fecundation takes place in the same cavity, sometimes within the limits of the third, fourth, or fifth months of

gestation. A little more than a year ago, I saw, with Mr. Eardley, of Charles-street, Westbourne-terrace, the following case:—A young married woman, pregnant for the first time, miscarried at the end of the fifth month, and some hours afterwards a small clot was discharged, enclosing a perfectly fresh and healthy ovum of about one month. There were no signs of a double uterus in this case. The patient had menstruated regularly during the time she had been pregnant, and was unwell three weeks before she aborted. She has since been delivered at the full term.

Many obstetric writers have combated the occurrence of genuine super-fetation from the difficulty of explaining the occurrence of a second pregnancy while the development of an ovum is going on in utero, so that it may be well to say a few words upon the subject.

Dr. Fleetwood Churchill is of opinion that the difficulties in the way of receiving the theory of super-fetation are almost insurmountable. He considers the deciduous membrane to be a shut sac covering the orifices of the os uteri and Fallopian tubes, and that the plug of tenacious mucus secreted by the cervical canal, as well as the mechanical arrangement of the decidua, apparently render it physically impossible, that the spermatozoa and the ovule can come in contact. Dr. Ramsbotham considers it impossible to suppose that a second impregnation can occur while the uterus is occupied with another ovum, and that the mucous plug of the cervix, and the decidual lining of the uterus, "would prevent the possibility of a fresh conception taking place." Many other obstetricians agree with these excellent authorities.

It can, however, be shown that there is no positive physical obstacle to the occurrence of super-fetation in the mechanical closure of the canal of the cervix uteri, or the uterine apertures of the Fallopian tubes by mucus and decidua. I have, I think, demonstrated, by numerous microscopical examinations, that the mucous plug of pregnancy is in no respect different, except in quality, from the mucus found in the cervix in the unimpregnated state, and through which the active spermatozoa must make their way in ordinary fecundation. I have pointed out that it is, in fact, similar to the secretion formed by the prostate, as the medium for containing the spermatic particles. As regards the difficulty presented by the decidua at the os uteri internum and the uterine apertures of the Fallopian tubes, William Hunter taught that the decidua was perforated at these points—namely, the upper part of the cervix and the tubal orifices, and no one has ever shown to the contrary. I have seen numerous preparations which prove that in early pregnancy the decidua stops short at the upper part of the cervix, leaving an opening into the canal of the cervix, and that the two apertures of the Fallopian tubes are distinctly pervious from the uterus. In the first three months the ovum consists of a bag which is only attached to one portion of the parietes of the uterus, leaving the cavity between the decidua vera and reflexa perfectly free. Professor Simpson and Dr. Mat-

thews Duncan have pointed out that in this way the communication between the vagina and the ovary may be free for a certain time after the commencement of gestation. Thus, with the exception of the mucous plug, there is no mechanical impediment between the os uteri and the ovaria, and we have seen that the cervical mucus forms no insuperable obstacle to the ascent of spermatozoa. Super-fetation, then, cannot be denied from the presumed impossibility of its occurrence. As the bag of the ovum increases in size, so as to occupy the whole of the fundus uteri, the mouths of the tubes are pressed upon by the ovum, but the cervical orifice remains open, with the exception of the mucous plug, until the end of gestation, except in placenta prævia. The infrequency of super-fetation probably depends more upon the absence of perfect ovulation during pregnancy, than upon any positive mechanical impediment to the ascent of the spermatozoa, or the incapacity of the decidua vera to receive a second ovum.

The ovum may be impregnated, or become attached and developed, at any period between the upper part of the cervix uteri and the Graafian follicle, or it may fall into the abdominal cavity. Whenever the impregnated ovum does not enter the cavity of the body of the uterus, it is called **EXTRA-UTERINE GESTATION**. The several situations in which this grave error, so to speak, of the generative functions may occur, constitute the different forms of extra-uterine pregnancy. These varieties are, the ovarian, ovario-tubal, tubal, ventral, and interstitial or parietal. In Ovarian gestation, the ovum is impregnated in, and attached to, the Graafian follicle or the external surface of the ovary. In Ovario-tubal gestation, the ovum is attached both to the ovarian and fimbriated extremity of the Fallopian tubes; but it is probable that in the first instance the ovum adheres to one of these organs only, and becomes attached to the other during its development. In tubal gestation, the ovum lodges in the Fallopian tube. In Ventral pregnancy, the ovum appears to miss the tube, and becomes attached to the peritoneal surface, generally amongst the convolutions of the small intestines. There is one other form of misplaced ovum, which is usually called a variety of extra-uterine gestation, although, strictly speaking, it is not extra-uterine. This, which has been made out by Breschet, is termed **Interstitial or Parietal gestation**. The ovum lodges near the point at which the Fallopian tube enters the uterus, and forms a nidus in the walls of the uterus itself. The ovum in these cases becomes surrounded by a layer of the muscular coat of the uterus, similar to the layer which surrounds the majority of fibrous tumours developed in the walls of the uterus. The ovum, in this form of gestation, is developed in a kind of sub-cavity, formed in the upper part of the uterus, or between the uterine layers at one of the Fallopian angles. We may compare this form of gestation in some respects to placenta prævia, in which the attachment of the ovum takes place at the os uteri internum. One or two rare cases have been observed, in which the ovum must have been

developed at the very point of junction between the tube and uterus, where the placenta has occupied the uterus, while the rest of the ovum has been contained in a cyst formed by the dilated Fallopian tube.

The tubal is the most common form of extra-uterine gestation. The ovum becomes enveloped in the chorion, a decidua is formed, as indeed is the case in all the varieties of extra-uterine pregnancy, and a pouch is developed in the tube, the muscular fibres of the tube being increased to a considerable extent. There is, however, a briefer limit to this than to any of the other forms of extra-uterine gestation. It is seldom prolonged beyond the second or third month, at which time, either from thinning, distension, or erosion, the cystic portion of the tube is rent, and the embryo escapes. In very rare cases the tube continues to enlarge, and the embryo remains in its cyst to the end of the natural term of gestation, or even beyond this. If the ovum remains in the tube long enough, an attempt at the formation of the placenta is made, this organ being very thin and vascular, and it is at the part opposite the attachment of the placental tissue that the rupture of the tube usually takes place. Contemporaneously with the development of the embryo in the tube, a decidual membrane is developed in the uterus in many cases, though this does not occur invariably.

The symptoms of tubal pregnancy are in a great measure the symptoms of all the varieties of extra-uterine gestation. The uterus is felt to be somewhat developed, but not to the extent which obtains in intra-uterine gestation. It is high up in the pelvis, so as often to be beyond the reach of the finger, though it is sometimes lower than natural. Menstruation generally ceases, but there is an occasional sanguineous discharge from the uterus in some cases, and there is sometimes an absence of nausea and vomiting. The ordinary changes occur in the breasts. The tumour of pregnancy is felt high up, and chiefly on one side of the abdomen. Altogether the uneasiness experienced in these cases in every variety of extra-uterine gestation is greater than in ordinary pregnancies, and often gives the patient the idea of some unnatural condition. When the tube bursts, the patient, generally without any premonition, is seized with agonizing pain, followed by ghastly pallor, fainting, hurried breathing, and fatal collapse. Cases have, however, been met with, in which little pain has attended the rupture of the tube, the symptoms being those of pure collapse. On dissection, the ovum is found in the abdomen, with a rent in the tube, and a large quantity of blood in the peritoneal cavity. At the time of the bursting of the tube, there are indications of uterine excitement, and an attempt at detaching the decidua where this structure exists. Death is evidently caused by the loss of blood, and by the shock incident to the effusion into the peritoneum. The treatment is unhappily almost nil. Pressure and cold have been recommended. Restoratives and opiates have been given to allay pain and support the patient, but very rarely with anything

beyond the most transient good effects. As, with a rare exception or two, all these cases have proved fatal, if the diagnosis were perfect, it might afford a bare chance of safety, in such a desperate conjuncture, to open the abdomen, and attempt to arrest the flow of blood by deligation of the tube.

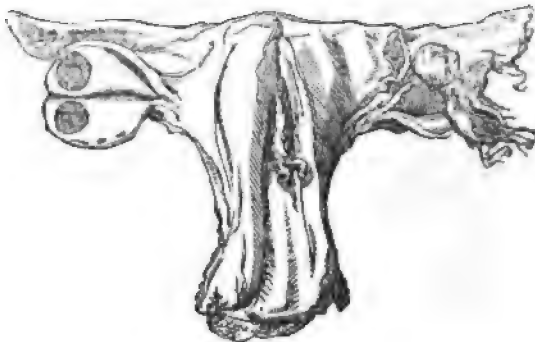
FIG. 65.



Case of tubal gestation.

Some years since, Dr. Oldham wrote to ask my opinion upon a curious circumstance which he had observed in a case of tubal gestation. It was, that the corpus luteum was found in the ovary opposite to the side on which the ovum was lodged. Three explanations suggested themselves. The unimpregnated ovule might have been swept by the cilia of the peritoneum from the right ovary to the fimbriated extremity of the left tube. This would be similar to that which occurs in the amphibia, in which the ova always traverse the abdomen to reach the oviduct. Or the left tube may have reached over to the right ovary, and have taken up the ovule. This was the opinion to which I believe Dr. Oldham and Mr. Wharton Jones inclined. According to the third explanation, it might be, that the ovule had descended the right tube, entered the uterus, and then ascended through part of the left tube, by an antiperistaltic action, or the ciliated currents, which move from below upwards. My own opinion was in favour of the ovule having entered the uterus by one tube and ascended by the other. Such cases are very interesting in relation to the causes of extra-uterine foetation. Dr. Oldham has now collected three cases of this kind, so that they cannot be very uncommon. The following wood-cut is taken from a drawing of one of Dr. Oldham's cases.

FIG. 66.



Tubal pregnancy, with the corpus luteum on the opposite side. The decidua is in process of detachment from the uterine cavity.

As regards the causes of extra-uterine foetation, many hypotheses have been advanced. It is believed that there is a greater tendency to this accident in the unmarried than the married, and some curious cases are on record, in which it has happened in women who were the subject of fright or terror at the time of coitus. In these cases emotion would seem to be a cause. In the ovarian and ovario-tubal varieties, it is suggested that inflammation of the mucous lining of the follicles, or of the indusium, or the extremities of the tubes, may have caused adhesions of the ovum, and it has been said that these forms are prone to occur in courtezans, in whom ovario-tubal inflammation and adhesion are common. In tubal gestation, there may have been large size of the ovum, feeble peristaltic action of the tube, or inflammation of the tubal mucous membrane. In ventral pregnancy, the cause would seem to be the faulty action of the tube in grasping the ovary. In the interstitial cases the ovum has been supposed to lodge in some fold or depression upon the surface of the uterus.

In ovarian pregnancy, the early symptoms are the same as in the tubal variety, but the catastrophe does not occur so early, nor does death take place with the same rapidity. The ovum is in some cases attached to the interior of the Graafian vesicle, the placenta combining with the corpus luteum, or it is seated upon the internal surface of the ovary. In the former cases, impregnation occurs within the mucous follicle, and the ovule probably never leaves its primary nidus. There is, as in the tubal variety, a thin placenta, and the decidua, chorion, and amnion are formed within the sac. Sometimes death happens as suddenly as in tubal gestation, from the shock and loss of blood attending the rupture of the ovary; in others, the ovarium increases in size, and the foetus goes on to the full term, when it dies, and may be retained for a considerable period. When this happens, the case follows the course to be presently described, when treating of the termination of ventral pregnancy. In this form of extra-uterine pregnancy, a more or less perfect decidua is formed in the uterus, and there are constant and violent attacks of uterine pain, accompanied by sanguineous discharges. Of the occasional occurrence of ovarian pregnancy there can be no doubt, though it has been questioned, chiefly upon theoretical grounds, by Velpeau and others. I believe, however, that cases have been ranked in this variety in which no pregnancy of any kind existed. Even in the celebrated essay of Dr. Campbell, cases are admitted which are open to doubt. In the case of Louise Adelaide, for instance, on a post-mortem examination, a pouched tumour, occupying the situation of the left ovary, was found, containing hair, teeth, bones, and greasy matter. This may, however, have been a case of ovarian disease without impregnation, in which such structures are sometimes found. The changes in the ovary consequent upon the discharge of an ovule and the formation of a spurious corpus luteum have also, before the function of ovulation was understood,

been mistaken for commencing ovarian gestation. In the undoubted cases, the entire foetus has been found within the sac, or escaped from a perforation in the ovarian cyst. The rupture of the ovarian cyst in extra-uterine cases is generally preceded by uneasiness and pain in the tumour, and seems to be effected by an inflammatory process. In the interstitial form of gestation, the development of the foetus usually goes on to the full term.

In ovaria-tubal and ventral pregnancy, the ovum draws its nourishment more easily than in other cases, and the structures surrounding it yield, so that the tendency is to go on to the full term of pregnancy. The auscultatory sounds are the same as in natural pregnancy, but the limbs of the foetus are felt with great distinctness; hardly more so, however, than in some cases of intra-uterine gestation, where the parietes of the uterus are of unusual thinness. If the cyst containing the ovum bursts, the symptoms are similar to those which occur in ovarian or tubal cases, but less severe. The accident generally happens at a later period, when the pressure of the surrounding organs appears to restrain the hæmorrhage. When rupture does not occur, the foetus has a tendency to perish at what would be the time of parturition; uterine contractions with the expulsion of the decidua generally occur; there is a lochial discharge, and milk is secreted. The death of the foetus is sometimes attended by violent movements and convulsions, of which the mother is sensible. These phenomena are probably the result of asphyxia, induced by the unfitness of the placenta to continue its functions. In some cases the child has been considerably larger than at the full term, and it has been supposed that it has lived one or even two months beyond the usual time. After the death of the foetus, a process of disorganization slowly commences, the bones separate, and the soft parts become converted into adipoceros material. It may become smaller and smaller, the cyst contracting upon it, and remain for a great number of years without causing any considerable

FIG. 67.



Case of abdominal pregnancy.

inconvenience. More frequently, however, it causes great irritation and inflammation, the residual mass attempting to make its way to the surface, or to the rectum and bladder, to be discharged. This process is attended by suppuration, hectic, colliquative sweating and diarrhoea, great suffering, and deterioration of the general health, which, spreading over a long period, very commonly destroys the life of the patient. Cases, however, occur in which perfect recovery ensues.

The treatment of such cases must be considered in relation to the time preceding and subsequent to the death of the fœtus. Dr. Campbell records nine cases of ventral pregnancy, in which gastrotomy was performed before the death of the fœtus, or shortly afterwards, and all died, probably because of the vascular connexion of the placenta with the abdominal viscera. Nature appears to be more happy in her mode of proceeding, and when the remains of the fœtus point either upon the surface of the abdomen, the vagina, bladder, or rectum, Art may step in and assist the process very efficiently. When the fetal abscess has burst, the opening may be enlarged to allow of the extraction of the extraneous matter, which consists of a mixture of bones, fatty matter, and the remains of the placenta, which is generally converted into a soft purulent mass. Of thirty cases in which, according to Dr. Campbell, gastrotomy, or the dilatation of a breach already effected by suppuration, was practised, twenty-eight recovered. During this process, which may occupy months or even years, the strength of the patient has to be supported, abscesses dealt with, and inflammatory attacks treated as they arise. In the rare cases in which, in ventral pregnancy, the cyst presents low down in the pelvis, and the parts of the child such as the head, hands, or feet, can be felt through the vagina, an incision through the vaginal walls into the cyst is a much more favourable operation than simple gastrotomy. Dr. Campbell states that of nine cases in which incision of the vagina was performed, in three, both mothers and infants were saved; in two the mothers only recovered; in one, the child alone was preserved; while in three, both mothers and children perished.

The present may be a proper time for mentioning a very curious and extraordinary obstetric and physiological phenomenon, far more rare than either super-fœtation or extra-uterine gestation, and having some relationship with both these abnormal conditions. I allude to what has been called MISSED LABOUR, in which the fœtus being in utero, parturition from some unascertained cause does not come on at the usual time, but the fœtus dies, and remains included in the uterus, without causing the immediate death of the mother. Dr. Oldham exhibited the uterus and remains of a fœtus, from a most interesting case of this kind at the first meeting of the Pathological Society in 1846. In this case the child was felt in utero, the fact having been ascertained by Dr. Oldham himself, so that no error can be imagined; but parturition did not occur, nor any attempt at parturi-

tion. The child died, and became disorganised, portions of the fœtus discharging themselves or being removed through the os uteri for the course of three months from the date of the parturient nixus. At the end of this time the woman died; and on making a post-mortem examination, Dr. Oldham found the remains of the fœtus, consisting of a moulded mass of bones and adipocercous matter. This mass had apparently worn through the interior wall of the uterus, apparently as an aneurism makes its way through the tissues with which it is in contact, and was in an imperfect cyst composed of the posterior wall of the uterus and the abdominal parietes. There had been no sign of rupture of the anterior wall of the uterus at any time. The fundus of the bladder was nearly eaten through, so that if the woman had lived portions of the fœtus would probably have escaped from the urethra. Dr. Simpson states that similar cases of missed labour are sometimes met with in cows and other animals, and that, as in the above case, the bones of the fœtus become moulded into a compact mass, which may remain a long time in utero. The following wood-cut represents the residual mass removed from the cyst after death, by Dr. Oldham, who has kindly allowed me to have a drawing taken:—

FIG. 68.



Contents of cyst in Dr. Oldham's Case of Missed Labour.

From the similarity of symptoms in this case to those cases of abdominal extra-uterine gestation in which the fœtus is retained, becomes encysted, and is discharged by the bladder or rectum, it is quite possible that cases of missed labour have been sometimes mistaken for ventral pregnancy. The treatment in cases of missed labour should evidently be to excite the uterus to contraction, if possible, by galvanism or other means, when the time of labour has passed and the child has been

ascertained to be dead, or to combine those means with attempts to break up the foetus and extract it through the os uteri. When this time has passed by, such cases resemble ventral pregnancy, and require similar treatment. They are, however, perhaps the rarest obstetric complication that can be met with.

LECTURE XVI.

THE GRAVID UTERUS.

GENTLEMEN,—The unimpregnated, virgin, or nulliparous uterus, is from two inches and a half to two inches and three-quarters in length, its breadth being, from tube to tube, from an inch and a half to an inch and three-quarters. At the end of gestation, the uterus is about thirteen inches long, by eight or nine in breadth; its greatest antero-posterior diameter being eight or nine inches. Levret made some calculations, according to which the superficies of the virgin uterus may be taken at sixteen inches, while, at the time of the coming on of labour, its superficies may be estimated at about three hundred and thirty-nine inches! The cavity of the unimpregnated virgin is equivalent to about three-fourths of a cubic inch; while, when fully developed, it exceeds four hundred cubic inches! The uterus, in the virgin state, weighs about an ounce; and that of a woman, who has borne children, about an ounce and a half. Immediately after labour, the uterus weighs about twenty-four ounces; but this weight must be considerably exceeded when it is distended by the foetus, and its vessels are full of blood. These facts show the wonderful manner in which the uterus increases under the stimulus of impregnation—an increase having no physiological parallel in any other organ in the human body. This increase is divided between the mucous membrane or decidua, the lymphatics, the veins and arteries, the muscular structure, and the nerves of the organ.

The measurement already given represents the general size of the gravid uterus at the full term; but the capacity of the uterus varies much in individual cases, chiefly from the greater or smaller quantity of the liquor amnii, or the occurrence of twins. In some cases, there is only a very small quantity of liquor amnii; and in others, there may be dropsy, and great distension of the amnion. The shape of the uterus is ovoid, but its figure somewhat shorter, and the smaller extremity is less pointed, than in the egg. The organ is more developed anteriorly than posteriorly; and it is somewhat flattened behind. It is moderately filled, but not distended, by its contents. William Hunter, whose descriptions of the gravid uterus are almost as graphic as his beautiful plates, compares it to a bladder partially filled with fluid, in consequence of which it yields to the pressure of the surrounding parts, and is, to some extent, moulded by them in shape. The gravid uterus, when filled with its contents, feels much thinner to the touch than it actually is. Its parietes are from one-third to two-thirds of an inch in thickness; but it exceeds this considerably at the site of the placenta. Occasion-

ally, in twins, the two lateral valves of the uterus are developed in such a way as to leave a division or cleft between them; and cases are met with in which, with one foetus, the right or left side of the organ is chiefly developed. It sometimes occurs that a particular part of the uterus does not perfectly take on the growth of normal pregnancy, so that a ridge or contracted portion remains in the interior of the organ. The ligaments of the uterus are considerably altered by the gravid state. As the organ increases in size, it expands between the folds of the broad ligaments, so that in their unfolded state these ligaments form the peritoneal covering of the sides of the uterus. As a consequence, the broad ligaments and the ovaria, though they ascend during pregnancy, are lower down in their attachment to the uterus than in the ungravid state. The Fallopian tubes and the ovaria are close to the sides of the uterus, the fimbriated extremities pointing downwards, and the broad ligaments are shortened to the greatest possible extent. The ovarian ligaments lie upon the sides of the uterus, and the round ligaments extend almost perpendicularly downwards from the fundus uteri to the inguinal rings.

The development of the decidua mucous membrane has already been described. The lymphatics of the uterus and its appendages, which were first described by Cruikshank, increase from the minute size, and almost invisible, found in the virgin uterus, to the size of a goose-quill, or even larger, in the principal trunks. The lymphatic vessels pervade every part of the gravid uterus, but are especially abundant underneath the peritoneal covering. They follow the course of the hypogastric and spermatic bloodvessels, and reach the central lymphatic trunks by entering the glands of the sides of the vagina, and the iliac, sacral, and lumbar plexuses of glands. The lymphatics are, no doubt, largely concerned in the processes of the nutrition of the uterine tissues during their enormous growth, and in that removal of effete material after labour, which, in the course of five or six weeks, reduces the uterus from a pound and a half in weight, to something less than two ounces. The uterine arteries, both the hypogastrics and spermatics, greatly increase in size, particularly the hypogastrics. This increase is greater at the part of the uterus to which the placenta is attached. The uterine arteries, in ramifying in the structure of the organ, have a tendency to anastomose to such an extent as to form an arterial net-work; and as they plunge deeper into the substance of the uterus, they take a convoluted or spiral course. This spiral arrangement especially occurs before the vessels enter the placenta, the spirals running parallel with the decidua serotina, and immediately beneath it, for the space of half an inch or more, before perforating the decidua to pass into the placental mass. The veins, which, in reverse, accompany the hypogastric and spermatic arteries, are still more enlarged, and form plexuses especially in the neighbourhood of the placenta, and towards the internal surface of the uterus, of a larger extent than are found in any other veins of

the body. The uterine veins do not possess valves, and some of the largest are of sufficient size to admit the point of the finger. Altogether, the mass of blood contained by the arteries and veins of the uterus, in the healthy gravid organ, at full term, must be very great, and forms a considerable portion of its entire bulk. The serous or peritoneal covering of the uterus increases in thickness and extent, and but for the increased strength of the serous coat, it is probable that lacerations of the peritoneum would occur during the contractions of the uterus in labour.

Formerly, everything was vague respecting the existence and arrangement of the muscular fibres of the uterus. The possession, even, of muscular fibres by the human uterus was argued because they could be seen in the lower animals, and because, from the functions of the uterus, they were necessarily believed to exist in this organ, rather than because they could be satisfactorily made out in dissections. In the magnificent plates of William Hunter, the external surface of the uterus presents no definite muscular arrangement. This great anatomist could find nothing but "irregularity and confusion," except upon the inner surface of the organ, where he observed the fasciculi to have in some degree the regular arrangement observed in other muscular structures. His description of the internal layer of muscular fibres is perfect even at the present day. He gives an account of the circular fasciculi surrounding the body of the uterus, and the two concentric circular plains of fibres which surround the orifices of the Fallopian tubes, and gradually blend with the circular fibres of the body of the organ. William Hunter saw the analogy between these concentric rings—the orbiculares muscles, as he terms them, of the fundus uteri and Fallopian tubes, and the circular muscles found in the two horns of the uterus in animals possessing the uterus bicornua. His words are, "The better to conceive this arrangement of the internal muscular fibres, we may suppose each corner of the fundus uteri, where the tube is inserted, to be stretched or drawn out, so as to make two horns, or a bifid uterus, as in the quadruped; then, if we understand the inner fibres to be circular in every part of the uterus, we clearly understand how they will be circular in the human uterus upon its body, and likewise circular and concentric at each corner of the fundus." Before this time Ruych had described the fundus uterus as possessing a single circular muscle only. Sir Charles Bell carried our knowledge of this subject a step further, and described the muscular fibres diverging from the round ligaments to spread over the whole of the organ, and he considered these ligaments as in some respects the tendons of the external fibres of the uterus. His conclusion was, that the circular fibres prevailed towards the fundus, and that the longitudinal fibres were most apparent towards the os and cervix.

According to the recent descriptions of Kolliker and other minute anatomists, who have combined the use of the scalpel and the microscope in their investigations, the gravid uterus possesses three

layers of muscular fibres, all of them being of a paler colour than is found generally in other muscles. These three layers can be made out with tolerable distinctness, but not so clearly as we can make out the circular and longitudinal layers of the Fallopian tube or intestine. The internal stratum, or the inner layer of William Hunter, is thin, and composed of delicate circular and transverse fibres, the circular fibres being found chiefly in the middle of the body of the uterus, around the Fallopian tubes, and at the os uteri, in which latter position they form an imperfect sphincter. The middle layer is thick and strong, consisting of flat bundles of fibres, running in different directions, interlacing with each other, and surrounding the vessels of the uterus. These bundles of fibres are more loosely arranged than those of the internal layer, giving the middle portion of the uterine parietes a spongy appearance. This stratum is strongest at the fundus uterus, where it seems to consist of several layers. The external layers consists of transverse and longitudinal fibres, forming a thin stratum, immediately beneath, and intimately connected with, the peritoneal covering of the uterus. The longitudinal fibres are arranged chiefly upon the anterior and posterior surfaces of the organ, and extend from the fundus to the lower part of the cervix. The transverse fibres of this layer surround, or nearly so, the organ, and fibres derived from it are continued, not only into the round ligaments, but into the broad and ovarian ligaments, so as, in effect, to connect the fibrous structure of the uterus with the fibrous stroma of the ovaria.

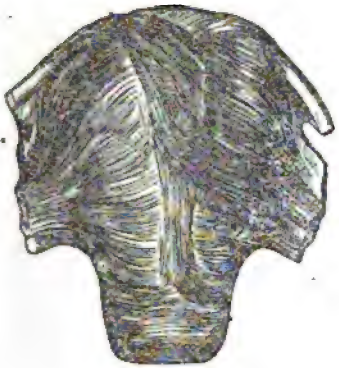
Sir Charles Bell pointed out a fact which has been confirmed by subsequent observers—namely, that in all parts of the uterus muscular fibres are found to surround the bloodvessels, and that this is especially the case with the open vessels upon the surface from which the placenta has been detached. William Hunter had observed that at the site of the placental attachment the inner layer of muscular fibres lost its regularity, and was found to be interlacing amongst the bloodvessels. The bearing of this arrangement upon the arrest of hæmorrhage after the placenta has been detached is obvious. Sir Charles Bell found

FIG. 69.



Internal layer of uterine muscular fibres.

FIG. 70.



Middle layer of uterine muscular fibres.

FIG. 71.



External layer of uterine muscular fibres.

that when the muscular fibres were contracted the mouths of the vessels were closed, and *vice versa*.

As regards the intimate structure of these muscular layers, upon which the great increase in the mass of the uterus depends, much has been made out by recent inquirers, especially by Virchow, Franz Kilian, Heschl, and by Mr. Rainey in this country. The mode of Involution and Devolution of the uterus during pregnancy and after parturition is now tolerably well understood. When describing the unimpregnated uterus, we have seen that the chief bulk of the organ is made up of fusiform embryonic cells, possessing a central nucleus. The embryo fibre cells are described by Kolliker as about $\frac{1}{1000}$ of an inch in diameter, their length being somewhat greater than their diameter. As soon as fecundation and the deposition of the ovum has occurred, these fibre cells begin to elongate by growth at each extremity, the nucleus remaining in the middle portion of the filament. The nucleus itself elongates, but the great increase in length is in the portion of the cell surrounding the nucleus. At the time of parturition, the fibre cells have so increased, that they measure in length from seven to eleven times greater than in the embryonic state. Their width is also increased from two to five times. There is not only an increase

in the fibre cells already existing in the uterus at the time of conception, but new generations of fibre cells are produced during the course of gestation. This new development of cells takes place chiefly in the internal and middle muscular layers, though it also occurs in the outer layer. The new formation is especially active during the first half of pregnancy. After the sixth month it is believed to cease, and from this time the embryonic cells are all developed, so that at the time of parturition, nothing but the colossal fibre cells are met with. It is those fibre cells which collectively give the uterus its enormous contractile power at the time of parturition. The ligaments of the uterus increase in size chiefly from the development of the muscular fibres which they contain. This is particularly the case with the round ligaments, and Kolliker supposes that the enlargement may depend upon the growth of the fibres derived from the uterus, and also upon the increase of the bundles from the internal oblique, which contribute to form the ligamenta rotunda. (Fig. 72.)

After the occurrence of labour, these gigantic fibre cells are no longer needed, and the uterus has to return in a comparatively short space of time from a weight of twenty-four ounces to one ounce and a half. The necessary involution of the uterus is effected chiefly by the atrophy and fatty degeneration of the colossal muscular fibres, and the absorption and removal of the fatty matter of the kidneys, the mammary glands, and the internal surface of the uterus itself. The whole uterus becomes soft: it is difficult to insulate indi-

FIG. 72.



1 and 2, Embryonic nucleated fibre cells of the unimpregnated uterus; 3, 4, 5, Muscular fibre cells of the gravid uterus in different stages of development.

vidual fibre cells from their excessive friability, and they are found to be studded with oily particles in their interior. The disintegrated muscular fibre of the uterus, taken into the system by absorption, probably contributes to the formation of the caseous matter of the milk first secreted, and fatty elements are found in the urine at this time, and abundantly in the lochial discharge. A brief, but very excellent account of the post-partum changes occurring in the uterus has been given by Dr. West, in the thirty-fourth volume of the "Medico-Chirurgical Transactions." During the involution of the uterus after labour, chiefly, as we have seen, by the fatty degeneration of the muscular fibres, a new series of nucleated fibre cells, having the shape and size of the fibre cells of the virgin, or nulliparous uterus, is formed. Kolliker states that three weeks after parturition, the embryonic fibre cells again appear, though a longer time than this expires before the complete fatty disintegration and absorption or discharge of the developed fibres is accomplished. Probably two or three months have elapsed before the involution of the uterus after delivery is completed; frequently the involution, as pointed out by Dr. Simpson, is not complete, when menorrhagia is the result. In other cases the involution is excessive, the uterus becomes smaller than before the occurrence of impregnation, leads to amenorrhoea, and subsequent infertility. Thus, as observed by Franz Kilian and Mr. Rainey, the highly developed muscular structure is removed, and a more lowly organized structure formed in its place after each labour, so that the gravid uterus in each successive pregnancy is, to a great extent, a new organ. (Fig. 73.)

The uterus receives its supply of nerves from the hypogastric, sacral, and spermatic nerves. Below the bifurcation of the aorta, we have the aortic plexus dividing into the two hypogastric nerves. The hypogastric nerve on each side forms, in its descent to the cervix uteri, the hypogastric plexus. The hypogastric plexus, when it reaches the cervix, terminates, according to the dissections of Dr. Lee, in the hypogastric ganglion. Into the outer and lower portion of the hypogastric ganglion branches enter from the third, and sometimes from the second and fourth, sacral nerves. From this ganglion nervous fibres are distributed to the muscular structure and the internal surface of the os, cervix, and the body of the uterus. Dr. Lee describes sub-peritoneal ganglia and plexuses upon the external surface of the uterus, which maintain connexion with the hypogastric ganglion below, and the spermatic ganglion and plexus above. The nerves of the virgin uterus are arranged in a serpentine form, and are always accompanied by a branch of an artery and vein.

We now approach the much-vexed question of whether the nerves of the uterus increase during pregnancy or not, than which nothing has more agitated or perplexed the anatomical and obstetric world in modern times. William Hunter, arguing from analogy, suspected that the uterine nerves enlarged in the same proportion as the bloodvessels. John Hunter thought the gravid uterus in-

FIG. 73.



Muscular fibre cells a fortnight after delivery, in a state of fatty degeneration.

dependent of nervous agency, and capable of motion "within itself," and he denied that the nerves were in the slightest degree increased during pregnancy. Tiedemann was the first to publish figures of the nerves of the gravid uterus, copied from actual dissections; but his two plates, taken from a woman who died six days after delivery, represent a very sparing supply of nerves. Since this time, it has been generally assumed that the nerves of the uterus are thicker at the time of parturition, than in the unimpregnated state, though some anatomists, as Lobstein, Oslander, and Longet, have either denied the existence of uterine nerves, or have limited this organ to a very scanty supply, both in the unimpregnated and gravid states. Dr. Lee, many years ago, threw himself into the investigation of this subject, and he has pursued it ever since with characteristic ardour. He has made numerous dissections, which in his own opinion, and in that of a host of authorities who have examined his preparations, prove to demonstration that the nerves of the uterus increase to a very great extent during pregnancy. All analogy and reasoning are in favour of the truth and fidelity of Dr. Lee's dissections; and the most recent investigations, by those aloof from all personal feeling, are chiefly in his favour. Remak states, as the result of his investigations, that the nerves enlarge during gestation. Kilian has made numerous researches in the lower animals, which prove that the nervous fibres, in a medullated condition, can, during pregnancy, be traced further into the substance of the uterus than at other times; while, in the unimpregnated uterus, the nervous fibres are found, even upon the surface of the uterus, in an embryonic, non-medullated state. Kolliker can see no impossibility in the multiplication of ganglion cells and fibres, and in the addition of newly-formed nerve fibres, as branches to other nervous fibres, or that the nerves, by a multiplication of their ultimate divisions, may ramify over larger spaces during pregnancy than at other times. That the pre-existing nervous fibres

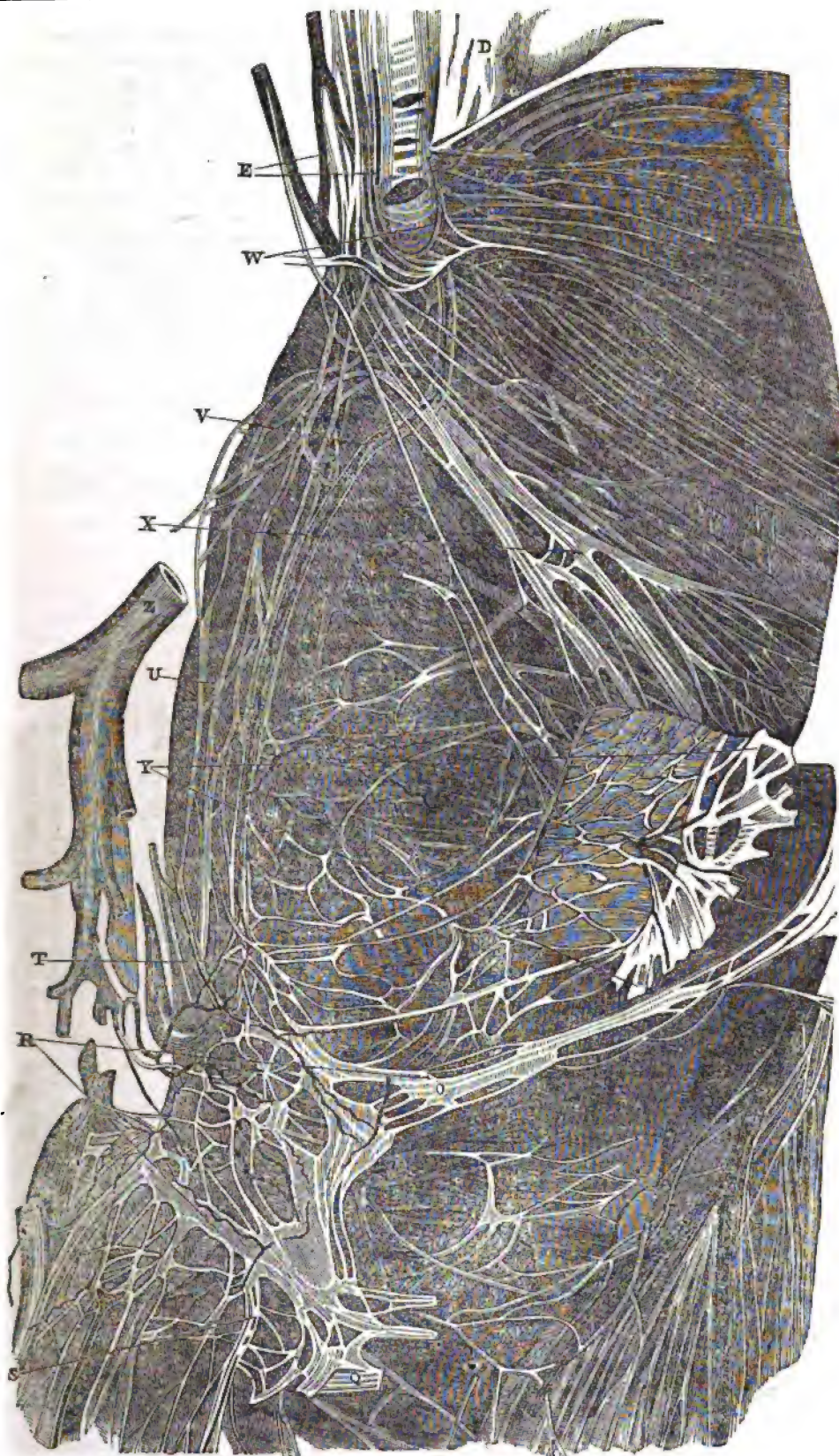


FIG. 74.—GANGLIA AND NERVES OF THE POSTERIOR AND LEFT SIDE OF THE GRAVID UTERUS AT THE NINTH MONTH.

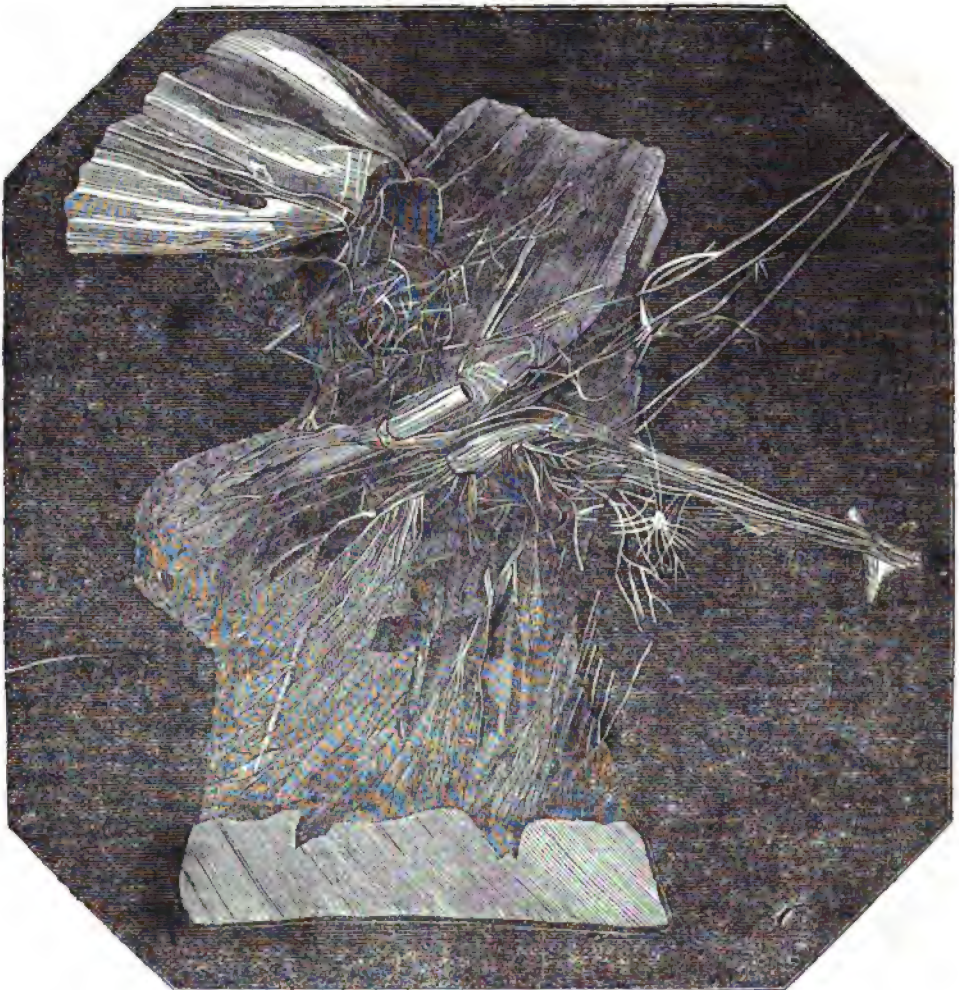
D, Left ovary and Fallopian tube. E and U, Trunks of left spermatic artery and vein, surrounded by spermatic ganglion. O, The left hypogastric nerve at the point of entering the hypogastric ganglion. Q, The sacral nerves entering the lower part of the hypogastric ganglion. R, The left hypogastric ganglion with its arteries injected. S, Nerves of the vagina. T, Nerves and artery passing from the hypogastric to the spermatic plexus. V, W, X, Y, Communications between the subperitoneal ganglia and the hypogastric and spermatic ganglia. Z, the left common iliac artery.—(From Dr. LEM.)

increase in width and length, and may be traced further into the interior of the uterus in the gravid organ than at other times, Kolliker entertains no doubt. Dr. Lee believes that very shortly after labour the uterine nerves diminish in size, and return to the condition which obtains in the unimpregnated state.

Dr. Snow Beck has executed some dissections of the gravid uterus, which appear to contradict those of Dr. Lee. Dr. Snow Beck believes that the nerves of the uterus are not by any means so large or so numerous as they appear in Dr. Lee's dissections. He considers that the nervous arrangement at the neck of the uterus should be called the pelvic plexus, instead of the hypogastric ganglion; and that the sacral nerves do not enter into that portion of the cervical plexus which supplies the uterus, but that they are distributed to the vagina and other parts. Dr. Snow Beck further believes that there is no increase in the size of the nerves during pregnancy, but simply that the nerves which, in the virgin uterus, have a

sinuous arrangement, become straightened during gestation. There are, it must be said, certain anatomists, having great authority, who hold with Dr. Snow Beck that the nervous supply of the uterus is very restricted, having little relation, as regards size, with the importance of the functions it is called upon to perform. It should be said, that Dr. Lee and Dr. Snow Beck have executed their dissections upon a different principle, which may go somewhat towards accounting for the different results at which they have arrived. Dr. Snow Beck has, by very minute dissections, cleared the nerves of the neurilemma; while in most of his dissections, Dr. Lee has preserved the neurilemma, as a constituent part of the nerves. But for this difference, the results of the two dissections could scarcely have been so antagonistic as they now are. With every anxiety to form a correct opinion, I think it must be said, that during the last few years, the new evidence which has been brought to bear upon this important subject has been very greatly in Dr. Lee's favour.

FIG. 75.



The left hypogastric and sacral nerves entering the hypogastric ganglion, with the bloodvessels, nerves, and ganglia of the Virgin Uterus, a portion of the neurilemma being removed, and the size of the ganglia and nerves being thereby reduced below the natural size.—(From Dr. Lee.)

LECTURE XVII.

THE NERVI-MOTOR FUNCTIONS OF THE UTERUS.

GENTLEMEN,—Uterine muscular and nerve fibre have been considered in the last Lecture, and we come now to the study of the motor functions performed by the gravid uterus. The developed organ is as strictly a muscle as the heart or diaphragm, and it is the chief agent by which the expulsion of the foetus is effected. It is of immense importance that the nature of uterine muscular action should be understood, since we are obliged to take it into account in all cases of natural labour, and still more so in cases of preternatural parturition. One class of accidents during labour, of which rupture of the uterus is the type, arises from excessive uterine action; while another class of scarcely less importance, of which hæmorrhage may be regarded as an instance, depends upon deficient uterine action. The older writers thought much of this subject, though the data upon which they reasoned were slender and imperfect. It is, however, remarkable, that considering the interest of the subject, it has not been satisfactorily discussed in any modern work upon obstetrics. The little that we know upon the subject has been almost entirely confined to works on physiology. This has arisen, in great part, from the idea that the uterus was so unlike the general muscular system, that it could not be reduced to physiological rule. But the muscular structure of the uterus, and its dependence upon the nervous system, having been made out in recent times, it becomes necessary to study accurately the nervi-motor endowments of the gravid organ, which is certainly the largest, and as regards the perpetuation of the race, the most important muscle in the human economy.

The uterus is in relation with the Cerebral, Spinal, and Ganglionic divisions of the nervous system, and possesses properties derived from each of these sources of motor power.

In the first place, let us consider the relation of the Cerebral system to uterine motor action.

The uterus is withdrawn from the direct influence of Volition. The will has no direct power either to contract or to dilate this organ. Labour may take place when cerebral paralysis exists, the will being entirely in abeyance, but the uterine movements dependent on reflex action and peristaltic action remaining perfect. But though not exerting any direct influence, volition may affect the uterus indirectly. In certain cases of uterine inertia, when the contractions of the uterus have entirely ceased, voluntary efforts are sometimes sufficient to reproduce uterine contractions. Efforts at expiration, with the glottis closed, cause the abdominal muscles to compress the uterus mechanically, and this compression stimulates the uterus in the same way as manual irritation of the organ. What is called in other organs consensual action, may also probably be excited in the uterus, to some degree, by volition. Violent voluntary action quickens the action of the heart, and the voluntary contraction of the internal rectus muscle contracts the iris, though both the heart and the iris are re-

moved from the direct action of volition. In a similar manner, the uterus, during parturition, is probably affected during the intense efforts at expiration and bearing-down, which accompany the pains of labour.

A very powerful influence may be exerted upon the uterus by Emotion. A fright, or any violent mental disturbance may bring on labour prematurely, or produce abortion. During labour, any sudden emotion of the mind may increase or arrest uterine action. The different effects of hope or despair on the commencement, progress, and termination of labour have frequently been remarked. Emotion often plays the part of Tantalus to the accoucher. His entrance into the lying-in room may arrest the pains of labour for a time, through the influence of emotion, but if he should leave the house, they as often return with increased vigour, and terminate the labour abruptly in his absence. After delivery, the maternal emotion exerted by the sight of the infant causes the uterus to contract in a remarkable manner. Emotional, like voluntary action, is psychical in its nature, and originates in the cerebrum; but it acts upon the uterus and other parts through the spinal marrow, the great organ of physical motion. This is evident from the fact that emotional movements may occur in parts which are entirely paralysed to cerebral voluntary motion.

Let us now refer to the forms of uterine action depending upon the Spinal Marrow, a subject which did not admit of comprehension, before the brilliant discovery of the spinal system by Dr. Marshall Hall.

The Reflex, Spinal, or Diastaltic action of the uterus is excited in various modes; and it is upon this form of contraction, aided by peristaltic action, and the extra-uterine reflex actions excited during the process, that natural parturition essentially depends. Contraction of the uterus, of a reflex or diastaltic kind, may be excited by irritation of the mammae, as in the act of suckling the infant; by the impression of cold upon the vulva or abdominal surface; by irritation of the rectum, as by a stimulating enema; by gastric irritation, as in drinking a gulp of cold water, or swallowing a piece of ice; by ovarian excitement, as in occurrence of abortion from the menstrual nidus; by irritation of the vagina or pressure on the perinaeum, and by irritation of the os and cervix uteri. These facts supply the proof that the uterus is endowed with reflex action, and that the motor nerves of the uterus are in relation with the mammary, pubic, rectal, pneumogastric, ovarian, and vaginal nerves, and the nerves of the os and cervix uteri, as incident excitator nerves. There can be no doubt that in an organ thus subject to reflex action, its own nerves are exciters, and that in all contractions of the uterus excited by irritation of the internal surface of the uterus, or of the os and cervix during the passage of the foetus, the uterine actions are both reflex and peristaltic. That the internal surface of the uterus possesses incident spinal nerves is proved by the occurrence of vomiting, &c., from uterine irritation. There is indeed no instance of

a mucous surface wanting the power of exciting reflex action in other parts of the body. It is a question if any pure spinal fibres reach or proceed from the uterus, unmixed with fibres from the ganglionic. This admixture produces a curious effect upon the reflex contractions of the organ. If we irritate the conjunctiva with a feather, the orbicularis muscle contracts instantly. If we tickle the fauces, efforts at vomiting are immediately produced. But in the case of the uterus, contraction does not follow upon the irritation in so sudden a manner. I have sometimes, in cases of alarming hæmorrhage, had my hand in the uterus for a considerable time, and have carefully watched the influence of reflex stimuli upon the uterus. If, while the uterus remains flaccid, cold water is sprinkled upon the face, the uterus does not contract at once, but after an interval of half a minute to a minute, or even longer, the organ slowly begins to contract, reaches its acme by degrees, and as slowly relaxes. The same thing happens if, while the hand remains in utero, cold or iced water be injected into the cavity of the organ.

As a motor organ, the uterus stands alone in many respects. Unlike the rectum and bladder, it is not directly influenced by volition; and unlike the heart, it is extremely prone to reflex action. It more nearly resembles the œsophagus, which is uninfluenced by the will, but endowed with reflex motion and peristaltic action. It differs, however, from the œsophagus in the number of excitor surfaces with which the spinal system places it in relation. There is no other organ, not even the stomach, which can be excited by so many distinct organs, or which acts as such an extensive excitor of motor action in other parts, both in the impregnated and unimpregnated states, as the uterus.

Besides the reflex action of the spinal marrow, and its system of excitor and motor nerves, there is the Direct action of the spinal centre to be considered, though this form of spinal action does not play the important part assigned to it by Serres, Brachet, and Segalas. In what is termed Direct or Centric spinal action, the spinal centre with its motor nerves are concerned, to the exclusion of the incident or excitor nerves. Various instances of Centric spinal action may be given. Thus, ergotine passing into the blood, affects the spinal centre, and its effects reach the uterus by its motor nerves. Other oxytoxic agents, such as strychnia, carbonic acid, savin, aloes, alcohol, the biborate of soda, and probably ipecacuanha, act in a similar manner. The state of the circulation affects the spinal centre in a very distinct manner. It is well known that there is one form of puerperal convulsion depending upon hæmorrhage, where the heart and great vessels have been nearly emptied of blood, and another caused by fulness of circulation. The convulsion probably depends greatly upon the influence of deficiency or excess of blood in the vessels of the nervous centres. Want or excess of blood, or *materies morbi* in the circulation, act, then, as direct stimuli to the spinal centre, and in this way the state of the circulation affects the uterus during labour. The uterus acts

with increased force when the circulation is either plethoric or anæmic; though in the latter case, exhaustion of its nervous energy quickly ensues.

We now come to the consideration of Peristaltic action, or Ganglionic motor action.

When any part of a muscular organ supplied in whole or in part by the ganglionic system of nerves is irritated, the contraction which ensues generally spreads in a vermicular manner to a distance from the point of irritation, and continues for some time after the exciting cause is removed. This is called Peristaltic motion or action. The uterus is eminently endowed with this peristaltic form of contraction. When one point of the uterus is stimulated, through the abdominal parietes, or by the introduction of the hand into the uterus, the contraction excited extends to the whole organ. Harvey described this peristaltic action of the uterus in the doe. William Hunter saw it in the cat and rabbit. Müller observed it in the uterus of the rat and the oviduct of the turtle, and I have seen it in the uterus of the guinea-pig and other animals. The heart, œsophagus, and intestine may be excited to contraction after death; and I have seen the uterus and vagina of the rabbit contract rhythmically, when irritated, for several hours after the cessation of respiration. Many cases are on record in which women have died undelivered, but the child has been expelled spontaneously after death. In one case a woman dying during labour was placed in a coffin, and the fœtus was found the next day perfectly expelled. This post-mortem parturition must generally depend upon peristaltic action, commencing after the occurrence of somatic death, or upon the rigor mortis affecting the uterus. It is well known that the rigor mortis affects the other involuntary muscles, and especially the heart, which is contracted by this influence to such an extent as to empty the ventricles, and even to simulate concentric hypertrophy. Cases are related in which the fœtus has apparently been expelled some days after the death of the mother by gaseous distension of the abdomen; but these are different from cases occurring shortly after death, and before decomposition has set in. In the living subject, the peristaltic action of the uterus is the basis of the other uterine actions. In natural labour it is combined with reflex uterine action, and with various forms of extra-uterine action; but, under certain circumstances, it seems able to effect the expulsion of the child without other aid. In paraplegia from disease of the lower part of the spinal marrow, or in animals reduced to the same state by experiment, the peristaltic action is the chief power remaining to the uterus. In such cases, delivery has been effected in an imperfect manner by the peristaltic action of the uterus or the application of galvanism to the organ. It is not, however, known how much of the spinal marrow must be destroyed before the reflex or diastaltic actions of the uterus cease.

Certain experiments have been performed by various physiologists, with a view to determine the nature of uterine action. M. Serres found that on dividing the spinal cord in gravid animals before

the time of parturition, death ensued at variable intervals, but abortion did not necessarily occur. He then divided the cord in animals after the commencement of parturition, and the process was arrested. In other experiments, he excited abortion in animals by irritating the spinal marrow in the lumbar region. M. Brachet divided the cord in guinea-pigs between the twelfth and thirteenth dorsal vertebrae, after the commencement of labour, and everything but feeble contractions of the uterus were arrested, the animals dying in a few days undelivered. M. Segalas made a section of the cord high up, without influencing the uterus; but the organ was paralysed when the division was practised low down. Cases are detailed by MM. Brachet and Ollivier, as occurring in the human subject, in which, in paralysis depending upon disease high up in the spinal marrow, uterine action was not interfered with, but was diminished or suspended altogether in cases of paraplegia, the result of injury or disease, low down in the cord. Dr. Simpson has, I have understood, performed some experiments upon pigs which go to negative the experiments of MM. Serres, Brachet, and Segalas. In Dr. Simpson's experiments, which have not been published, I believe parturition occurred notwithstanding the destruction of the lower portion of the spinal marrow. If Dr. Simpson's results are as I have stated, they will not prove the independence of the uterus of reflex action, since from the connexions of the greater and lesser splanchnic nerves and the thoracic, abdominal, and pelvic plexuses and ganglia, it is quite possible that the uterus may receive spinal fibres from the upper part of the spinal marrow.

The direction taken by the peristaltic action is of considerable importance. Professor Müller, Michaelis, and Wigand, teach that uterine contraction commences at the cervix, and travels towards the fundus; returning thence towards the os uteri. This is thought by Michaelis to prevent prolapsus of the umbilical cord and the descent of the arms of the fœtus before the head; the cord and the arm, when lying low in the uterus, being swept upwards beyond the risk of danger, at the commencement of every pain. Wigand considers the direction of the contraction to be proved by the phenomena attending a labour-pain. At first the os uteri grows tense, the head or presenting part recedes from the touch, and the bladder of membranes protrudes; after this the fundus uteri becomes hard and the presenting part of the child begins to advance. I believe this view of Wigand, which has been particularly insisted upon by Dr. Rigby, to be a very accurate description of the direction in which the uterus contracts during a labour-pain.

If, as is most probable, the peristaltic action of the uterus does take this course, it is not singular, for, according to the observations of Magendie, the contents of the stomach are, during digestion, passed through the pylorus by a peristaltic movement, which begins at the pylorus, proceeds to the cardia, and then sweeps back again from left to right. Müller also describes the contraction of the heart of the frog as commencing in the venous

trunks; then descending, in succession, to the auricles and ventricles; and then affecting the bulbus aortæ. The peristaltic action commences at the uricle, travels to the apex, and then returns towards the base of the ventricle. There seem good reasons for the commencement of the peristaltic action at the cervix in the human subject, in the necessity which exists for some provision against prolapsus of the cord, and arm-presentations; and still more, from the great probability that, if contractions commenced at the fundus uteri, inversion of the organ would be a frequent accident.

In addition to the divers forms of uterine contraction, the Dilatation of the os and cervix uteri remain to be considered. The dilatation of the os uteri is, in part, mechanical or passive, depending on the contraction of the longitudinal fibres of the uterus, which tend to pull the os uteri open, and also on the fluid pressure exerted by the liquor amnii on the advancing head of the fœtus. But in addition to the mechanical distension, the os uteri is in part opened by an active mechanical dilatation. The presence of a power for dilatation in the os uteri is not more remarkable that its power of contraction after the completion of labour. We have seen that the os uteri contains numerous fibres arranged in a circular form. But the muscular fibres of the uterus, though of considerable length, do not at any point surround the organ, either in the body or at the os or cervix. This circular arrangement of the fibres, without the existence of single fibres sufficiently long to surround the os uteri, accounts for its power of contraction and dilatation. Before the commencement of labour in primipara, the os uteri is quite closed; while in parturition it is dilated to such an extent as to permit the passage of the child's head—a mass whose shortest diameter is three inches and a half, making the line of the circle necessary for its passage nearly eleven inches. This is a dilatation far exceeding that required in the action of any of the recognised sphincters, and we cannot but believe that if completely circular fibres existed at the os uteri, laceration would be inevitable.

Some of the physiological proofs of the possession of dilatable and contractile powers by the os and cervix uteri may be enumerated, and these proofs are not less convincing than the most certain anatomical evidence. In the first place, if the fibres of the cervix contracted with the same force as the fibres of the rest of the uterus, this organ could scarcely be emptied of its contents. Doubtless the contractions of the body and fundus uteri are strong, their bearing upon the cervix powerful, and the amniotic bag admirably adapted for mechanical distension; but it must be remembered that the short fibres of the cervix act at a great mechanical advantage, as compared with the fibres in any other district of the uterus. Let any one who supposes the body and the fundus may forcibly overcome a contracted state of the os and cervix, consider that the united power of all the respiratory muscles is insufficient to force the small muscles which close the glottis. The nature of the hæmorrhage in placenta prævia, as com-

pared with hæmorrhage from the fundus, affords the strongest argument in favour of a positive dilatation of the os uteri. In hæmorrhage from the fundus, the loss of blood is arrested during a pain, because the fundus is in a state of contraction; in hæmorrhage from the os and cervix, the flow is increased at each return of the pains, because the cervix is in a state of dilatation. If the dilatation were merely a mechanical distension, the pressure which dilated the os uteri would arrest the hæmorrhage at the same time.

Owing to the mixed mechanical and muscular dilatation of the os uteri, it generally opens slowly; cases, however, occur, in which, after long-continued rigidity, it dilates so suddenly, that even from this fact alone it is difficult to consider it a mere mechanical distension, the resiliency of the part affecting its subsequent contraction. But the strongest physiological proof of the existence of muscular power in the os and cervix uteri is the forcible contraction which sometimes occurs after full dilatation—as, for instance, in cases of encysted placenta, in which the fingers can only be introduced with the greatest difficulty; and again, in *inversio uteri*, where the speedy and powerful contraction of the cervix is one of the elements of the accidents most opposed to the re-position of the organs.

[In my last Lecture I omitted to state that, according to the recent investigations of M. Robin, Dr. Heschl, and others, it is the neurilemma of the nerves which chiefly enlarges during pregnancy. Dr. Lee has contended for this, and it is a point which bears directly upon the dissection of the nerves of the gravid uterus by Dr. Snow Beck, in which the neurilemma was, as far as possible, removed.]

Notes of Three Lectures

ON THE

PHYSIOLOGICAL ACTION OF STRYCHNIA.

DELIVERED BY

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DR. HARLEY, after briefly explaining to his class the reasons which induced him, at the present time, to alter the prescribed order of his course, and to take up the subject of Strychnia, proceeded to demonstrate, by direct experiment—1stly, the manner in which the substance in question enters the system; 2ndly, its mode of action; and 3rdly, the way in which it destroys animal life.

The following is a brief summary of the remarks made:—

To the first question—How is strychnia or any of its compounds, all of which have a similar physiological action, received into the system?—the answer is, by absorption; the manner of this absorption being very various. The poison is absorbed by the mucous membrane of the stomach and intestines, when administered by the mouth, as

in the case of the animal now operated upon (a frog); it enters directly into the circulation when introduced through a wound, as is now done. (Some solution of strychnia was introduced into the cellular tissue of another frog). It is absorbed by the skin, as will be shown in the case of this third frog, upon whose back a few drops of acetate of strychnine are now poured.

The poison may, in fact, be introduced into the body in every conceivable manner: by the mouth or by the rectum; by the cellular tissue or by the organs; by the epidermis covering the external surface, or by the serous membranes lining the interior cavities of the body. When once the poison has entered the blood, its mode of action is in all cases identical.

The time required for the development of the poisonous qualities of strychnine varies, however, in different species of animals, and even individuals of the same species, being influenced by the age, strength, &c., of the animal. The rapidity with which this substance kills depends, moreover, on three distinct causes:—*a*, the form, solid or fluid, in which the poison is administered, the latter form being the most favourable for absorption; *b*, upon the part of the body at which it is introduced, its action being the more speedy the quicker it obtains entrance into the circulation; for example, it affects the system more rapidly when injected into a vein than when given by the mouth (see below, second experiment on dog); it is absorbed much more rapidly when introduced into the thoracic or abdominal cavity than when applied to the skin. In proof of this, I take two drops of a solution of acetate of strychnine, so weak that each drop contains not more than $\frac{1}{1000}$ of a grain; dilute still further with a small quantity of water, and divide the solution into two equal portions. In one portion I place a frog, in order that the strychnia may be absorbed into his body through the skin; the remaining portion I inject into the abdominal cavity of a second frog, exactly similar to the first in size. The frog into whose abdomen $\frac{1}{1000}$ of a grain of strychnia was injected will become tetanic very much sooner than the one into contact with whose skin an equal quantity of the poison has been brought.

The idea of employing frogs as tests of the presence of strychnia originated with Dr. Marshall Hall and, so far as my experience goes, I consider this test the most delicate and the least liable to error of any with which we are acquainted. There exists, however, a method of administering the poison by which a far greater effect is produced, in a much shorter time, upon the animal, than when applied, according to Dr. Marshall Hall's recommendation, to the skin: I allude to the injection of the suspected solution into the thoracic or abdominal cavity. We may judge of the relative delicacy of the methods by the rapidity with which the poisonous qualities are developed. The frog into whose abdomen the $\frac{1}{1000}$ of a grain of strychnia was injected is already tetanic (in three minutes); the other has as yet exhibited no symptoms of being poisoned, and will not become tetanic.

nic before the expiration of at least an hour and a half.

The fatal effects of strychnia manifest themselves in a longer or shorter period of time, according to the amount absorbed. The result in the first three frogs, operated upon by three different methods, the poison being given by the mouth, through a wound, and by the skin, is seen to be similar in all. Each is suffering from convulsions, and these convulsions are of the kind usually termed tetanic, from the spastic rigidity of the voluntary muscles. One of the frogs, you observe, is in a state of *emprostotonos*; its hind legs are stretched out, its back is curved upwards, its fore-legs are crossed upon its breast, and its hands tightly pressed against each other, while its head is bent inwards; and, during the spasm, the animal, were it not for its fore-legs being crossed upon its breast, would rest entirely upon the point of its nose and the toes of its hind-feet. *Emprostotonos* is not the only form which the complaint assumes in the frog. The frog to which the strychnia was administered through a wound is in a state of *opisthotonos*; his head is thrown back, his hind-legs are slightly raised, and he rests entirely upon his belly and fore-legs. In the human subject labouring under tetanus, *opisthotonos* is most common; while in the frog, judging from my own observations, *emprostotonos* seems more frequent. All three animals before us have lock-jaw.

The spasms, though they follow each other rapidly, are not, you will observe, continuous; and the intervals between them are longer if the animal is allowed to remain quiet. A knock on the table, a stamp on the floor, or even the mere scratching of the tablecloth in the vicinity of the animal, induces a paroxysm. This arises from the superexcited state of the nervous system, and must not be regarded as a symptom peculiar to tetanus; for it is occasionally observed in other diseases. Seven years ago I had under my care a child suffering from *tabes mesenterica*, ending in perforation of the bowels. In this case the slightest noise in the room, as the falling of a key or spoon, would bring on spasm of the abdominal muscles; and from the noise of the flatulence and the undulations of the abdominal walls during a paroxysm, I even believed there was a severe peristaltic action of the intestines, their involuntary muscles, which are as we well know exceedingly sensitive to mechanical irritation, having been thrown by the mere noise into violent action.

The next point to be considered is, the action of strychnia upon the body. It was formerly believed that all poisons which killed rapidly acted by a direct influence upon the nervous system. This is, however, a mistake, as no poison can injure or destroy life before it has entered the blood. The application of strychnine to a nerve will never produce poisoning, nor can a nerve serve as a channel of introduction of poison into the system. In proof of this, I take a frog, the tissues of one of whose hind-legs have been completely cut through, (experiment first proposed by Magendie,) with the exception of the nerve which still serves to attach

the limb to the body. This leg, thus hanging only by the nerve, is introduced into a solution of strychnia, and not the slightest symptom of poisoning will ensue. In another frog the tissues of a hind-leg, including the nerves, are cut completely through, with the single exception of the femoral artery and vein, which still remain to keep up the communication between the body and the amputated limb. Distinct symptoms of poisoning will appear soon after I place the limb in the very same solution of strychnia as in the last case.

The strange fact that a poison acting so powerfully upon the nervous system as strychnine should remain harmless when brought into immediate contact with the nerves themselves can, according to Stilling, be clearly explained by experiment. If a few drops of a solution of strychnine are allowed to fall upon the exposed spinal cord of a frog, the animal will in a few minutes become tetanic; while if, in another case, the spinal marrow be divided into an anterior and a posterior half, and strychnine be carefully applied to one of the portions, tetanus occurs only in that part of the body supplied by nerves arising from the portion of the spinal cord brought into contact with the poison. The remainder of the body is not affected. A portion of the body of a frog may be rendered tetanic in the same way as the whole body. (Upon the upper half of the severed body of the frog a few drops of strychnia were poured, and it became tetanic in the course of a few seconds.)

If the aorta be tied, and strychnia afterwards administered by the mouth, no symptoms of poisoning will ensue. When the vessels of one of a frog's hind-legs are tied, and strychnine is given, tetanus occurs in the whole body, including the limb whose vessels are ligatured. If, however, the nerves of the limb are cut, and the vessels left free, tetanus occurs throughout the body, with the single exception of the limb with the divided nerves. This proves that strychnia stimulates the spinal cord similarly to galvanism. When administered by the mouth, it reaches the spinal cord only through the blood; no effect is therefore produced if the circulation be interrupted.

The artificial disease, tetanus, has no seat in the limbs, and the tetanic spasm of a limb is produced by no superexcited state either of its nerves or muscles, but by a stimulus derived from the spinal cord, and acting through the nerves. During the tetanic paroxysm, I divide the nerve supplying one of the hind legs of a frog, and the spasm in that limb, you observe, instantly ceases. Tetanus, therefore, does not exist in the limb itself.

To show still further the total absence of superexcitement in the limb, I will compare the amount of muscular irritability produced by applying a direct stimulus, in the form of galvanism, (by means of the galvanic forceps), both to the nerves and muscles in the limb of the poisoned animal, with the amount of irritability yielded by a healthy frog, prepared according to Galvani's method. Thus you see demonstrated, by direct experiment, not only the total absence of superexcitement in

the limb of the poisoned frog, but the existence of even a lower degree of excitability than is found in the healthy animal.

Having seen that strychnia is absorbed by the vessels, and not by the nerves, the next point is, to determine the class of vessels, lymphatics, or veins to which this property is to be assigned. If the jugular vein of an animal be dissected from the surrounding tissues, and a piece of card passed under it, a few minutes after a solution of strychnia has been dropped upon the vein, symptoms of tetanus will supervene, and these can be interrupted by ligaturing the vessel, (Magendie.) When, after the thoracic duct has been tied, strychnine is introduced into the intestines, poisoning still takes place, (Brodie.) Magendie observed that when an animal had been fed, and the lymphatics divided after they had become distinctly visible, the animal was easily poisoned by introducing strychnine into the intestines; and Segalas has pointed out, that if the bloodvessels are ligatured, and the lymphatics left entire, poisoning does not occur in an hour. This experiment will now be demonstrated on two large frogs.

I begin by ligaturing this large vein, which you see on the inner surface of the anterior abdominal wall, a vein which does not exist in quadrupeds, but only in certain reptiles. I next ligature the portal vein, and into the loop of intestines contained between two ligatures introduce a few drops of a strong solution of strychnine. In this second frog, all the vessels, the veins as well as the lymphatics, are left free, and a similar quantity of strychnine introduced as in the former case into the loop of intestines included between two ligatures. In the first example, where the bloodvessels are ligatured, and the lymphatics alone left free, no symptoms of poisoning will occur up to the termination of the hour. In the latter case, where none of the vessels are tied, tetanus will supervene within five minutes. (This took place, entirely confirming the assertion of Segalas.)

To sum up the manner in which strychnia acts upon the body, the foregoing experiments have shown, that to produce symptoms of poisoning, strychnia must be absorbed by the bloodvessels, in order to reach the spinal cord; that it cannot be conveyed thither by the nerves; that the spinal cord alone is the seat of the artificial disease; that it is the nerves which, though not superexcited themselves, convey the effects of the disease to the circumference of the body. In a word, the vessels convey the poison to the spinal column, the spinal column becomes supercharged like a Leyden jar, and the nerves are the wires which distribute the shocks.

The third and last point to be determined is—the manner in which strychnia destroys life. This is still an open question. According to some authors, animals poisoned by this substance die in three ways: Firstly, from exhaustion; secondly, from asphyxia induced by spasmodic closure of the glottis; and thirdly, from suffocation, arising from the spasms which affect the respiratory muscles and put a stop to the breathing process.

Not one of these views appearing to me satisfactory, I shall not offer any remarks on the subject, but at once proceed to experiment, leaving you to form, from the results obtained, your own estimate as to the correctness or incorrectness of one or all of these theories.

Into the thoracic cavity of a dog I inject half a grain of the acetate of strychnine; you observe, he at once begins (in thirty-six seconds) to become tetanic. The eyes are starting from their sockets, and the pupils are widely dilated; the spasms cease (in one minute and a-half); the limbs become relaxed; there is no perceptible pulse; no respiration can be detected; (the thorax of the dog was speedily opened); the heart is seen to quiver feebly but twice; it has now ceased to beat, and the animal is dead. What has been the cause of death? Certainly not exhaustion: the number of spasms and their duration—two minutes at most—preclude this idea. Let us proceed to test on another animal the value of the two remaining theories regarding the mode of death by strychnia.

In order, in the first place, to determine if animals poisoned by strychnine die from suffocation, in consequence of closure of the glottis, I shall perform tracheotomy, and introduce a wide tube into the windpipe of a dog before poisoning him. If he dies, it is clear that death cannot possibly result from air not entering the trachea, as the opening in the tube will admit an abundant supply. (Experiment suggested by Professor Sharpey.) If the animal exhibits signs of approaching death in spite of the complete freedom of the passage for the admission of air into the lungs, I shall immediately supply to those organs, by means of an artificial respirator invented by Dr. Marcet, the amount of air necessary for the maintenance of life. This will determine if the symptoms of suffocation are caused by spasm of the respiratory muscles. If the animal dies, in spite of the artificial respiration, we shall have obtained proof that strychnine does not suffocate by spasm of the respiratory muscles, and shall be forced to seek another explanation of the cause of death. [The trachea of a full grown small dog was laid bare, and a glass tracheotomy-tube of large calibre inserted into it, without appearing to cause the slightest inconvenience to the animal. The jugular vein on the right side was next dissected from the surrounding tissues, and a solution containing $\frac{1}{15}$ of a grain of acetate of strychnine carefully injected into the vessel. In four seconds, before the nozzle of the syringe could be removed from the vein, the animal became tetanic, the spasms rapidly following each other, and during the first thirty seconds gradually increasing in intensity. The convulsions of the voluntary muscles of the limbs and of the semi-voluntary muscles of respiration were not continuous. On placing the hand in front of the tracheotomy-tube, the air was felt to be expired by sudden jerks, and, from the frequency of the respirations and the force with which the air was expelled, the animal seemed to breathe more than in his normal state. In fifteen minutes, when the animal began to gasp as if for

air, notwithstanding that an abundance seemed to be supplied, artificial respiration was resorted to, and not interrupted until the gasping ceased and the animal appeared more easy. The pulse was 104, and the artery felt at times to the finger as if affected by spasm. There was no lockjaw. As the gasping returned, artificial respiration was again kept up for a few minutes. The animal again appeared relieved, but in a very few minutes symptoms of impending suffocation recurred. The artificial respiration was this time found to be unsuccessful.* Twenty-eight minutes after the administration of the poison the pulse ceased; and though artificial respiration was kept up during nearly a quarter of an hour, it failed to restore the animal to life.] The experiments made prove that death from strychnine may occur independently, 1st, of exhaustion; 2nd, of asphyxia from closure of the glottis; and 3rd, of suffocation from spasms affecting the respiratory muscles.

It was a remarkable circumstance in the case of the last animal operated upon, that while a large interchange of gases was constantly occurring in its lungs, it presented all the appearance of an animal dying for want of a sufficient supply of air. This must have arisen from the fact that the oxygen in the lungs was either not absorbed into the blood, or not assimilated after absorption. The absorption of oxygen by the blood being a purely physical process, we must in the absence of any reason for its non-absorption, set the first hypothesis aside. The second seems less open to objection, particularly if we consider the results of some experiments which I made on the action of strychnine upon the blood.† I found that strychnine, as well as brucia, possessed the property of diminishing the power of the constituents of the blood to take up oxygen and yield carbonic acid. For example:—

EXPERIMENT 1.—A certain quantity of fresh calf's blood was first shaken with renewed portions of air until it had become thoroughly saturated with oxygen, then introduced into a graduated glass vessel with 100 per cent. of ordinary air, corked carefully up, and kept during twenty-four hours in a room of moderate temperature. In order to favour the mutual action of the air and blood, the vessel was frequently agitated. At the expiration of the twenty-four hours, the gas was analyzed by Bunsen's method, and the following was found to be its composition. In 100 parts—

Oxygen	11.38
Carbonic acid	5.96
Nitrogen	82.71

100.00

A second portion of the same blood, to which 0.005 grams of strychnine were added, was confined with the same quantity of air, for the same time, and treated in every respect in a similar manner. The gas yielded in this case—

Oxygen	17.82
Carbonic acid	2.73
Nitrogen	79.45

100.00

On comparing the result of the first analysis with the composition of the common air (oxygen 20.96, carbonic acid 0.002, nitrogen 79.038) which had been introduced into the vessel, it is seen that 9.63 oxygen had disappeared, and 5.96 carbonic acid now exists where only a trace of its presence could be detected. In the second experiment where the strychnine was present in the blood, no more than 3.14 oxygen had disappeared, and only 2.73 of carbonic acid had formed. Thus it is seen that strychnine possesses the strange property of preventing the constituents of the blood from absorbing oxygen and exhaling carbonic acid, and of thus becoming fitted for the purpose of nutrition. Strychnine is not the only alkaloid obtained from the *nux vomica* possessing this power; for brucia I found to act in a similar manner, though its effects were less marked. For example: a certain quantity of blood from another calf was confined with the same quantity of air, and treated in exactly the same manner as in the foregoing cases. At the expiration of twenty-four hours the analysis of the gas confined with the pure blood yielded—

Oxygen	6.64
Carbonic acid	3.47
Nitrogen	89.89

100.00

While that confined with blood to which had been added 0.005 grams of brucia gave—

Oxygen	11.63
Carbonic acid	2.34
Nitrogen	86.03

100.00

Thus proving that brucine, like strychnine, possesses the property of diminishing the power of the organic constituents of the blood to unite with oxygen and give out carbonic acid.

If the same action takes place in the blood circulating in the living animal as we here find to have occurred out of the body, a direct explanation is at once afforded us why the dog upon which we experimented should feel a want of oxygen, notwithstanding that a quantity sufficient to support life in the healthy condition of the animal was supplied. The animal, probably, was dying, not for want of the presence of a sufficient quantity of oxygen in its blood, but because the constituents of its blood could not assimilate the oxygen. The convulsions would not, in this case, be caused by the stimulating effect upon the spinal cord of an excess of carbonic acid in the blood; for strychnine and brucine, we have seen, acting upon blood removed from the body, cause its constituents to absorb less oxygen and exhale less carbonic acid than in a normal state. There would be therefore no excess of carbonic

* This experiment has been five times repeated, and the results have been found uniform.

† The experiments in question are extracted from a series made at Heidelberg, in 1865.

acid. The convulsions were probably due to disordered nutrition; the spinal cord receiving nutritive materials which, not having undergone the oxidizing process, were unfit for assimilation. A derangement of the functions of the nervous system would be the result.

Post-mortem Examination of the Dog killed by $\frac{1}{12}$ of a grain of strychnine, made twenty-four hours after death.—Rigor mortis had disappeared (it was very marked eighteen hours after death); the apex of the heart felt excessively hard, as if the muscle were in a state of rigor mortis; the right side of the heart was full of blood, the left side contained but little. Contrary to the general idea, the blood was found partly coagulated. No other appearance worth noticing was presented.

May not death have occurred by failure of the heart's power? It is generally supposed that venous blood excites the heart's action. I think, on the contrary, that the beatings of the heart are excited by the act of nutrition—i. e., by the stimulus given when oxygen is absorbed and carbonic acid exhaled. For if we put a frog's heart into an atmosphere of oxygen, it continues to beat for a very long time, whereas if it is placed in carbonic acid, the pulsations cease in a few minutes. With the cessation of the chemical changes, for the want of oxygen, the beatings of the heart are arrested.

In frogs suffering from the effects of strychnia, the heart remains almost to the last free from tetanic spasm. In this frog you will observe, although the voluntary muscles are affected with severe tetanic spasm, the involuntary muscles of the heart continue to act rhythmically. This small quantity of solution of strychnine, however, which I drop upon the organ, will soon produce tetanic spasm of its muscles. (I saw Professor Arnold perform this experiment. I am not aware of its being published.) The circulation, in the web of a frog's foot, seen through the microscope during the tetanic spasm, is observed to be momentarily arrested during the spasm, and then to bound onwards with a sudden jerk.

Here is a frog which was poisoned with strychnine two days ago. While the tetanic paroxysm was very severe, $\frac{1}{12}$ of a grain of Wourali poison was introduced into the cellular tissue. In ten minutes, the limbs had become perfectly flaccid, and no irritation induced a spasm. Two hours afterwards, conceiving the animal to be perfectly dead, I opened it, and was astonished to find the heart beating rhythmically. The next day, the heart was still found beating, and the circulation in the web of the foot slow, yet regular. Galvanism applied to the limb accelerated the circulation. Up to the present moment (fifty hours) the animal has not presented the slightest sign of life; and yet you see circulation continues.*

* Wourali and strychnine have, I find, the effect of reciprocally neutralizing each other, according as the one or the other poison is in excess. Being occupied with experiments on the subject, I shall only cite three:—

1st. A frog was poisoned with one five hundredth of a grain of Wourali. Three minutes after he had become perfectly insensible one one hundred and twentieth of a grain of strychnine was injected. In five minutes he became tetanic.

I have already mentioned, that I consider the physiological test the most reliable one for strychnine; and the method of applying it appears to be by injection into the thoracic or abdominal cavity. When the poison reaches the lungs, it seems to act most speedily. This is easily explained by the rapidity with which the poison will be absorbed into the blood through the pulmonary capillaries. Into this small frog I inject $\frac{1}{1000}$ of a grain of acetate of strychnine; into this other, $\frac{1}{1000}$. You may judge by the rapidity with which the symptoms of poisoning will ensue, how delicate the tests are, (both frogs became tetanic in less than ten minutes). A third frog became tetanic with only $\frac{1}{1000}$ of a grain.

In order to apply either the physiological or the colour-test to strychnia, we must first have the substance in a pure state. If, therefore, we wish to test for the presence in the digestive canal, tissues, or blood, we must first seek to separate the strychnine by a chemical process. The method I adopt, and which appears to me desirable from the ease and rapidity with which it can be applied, I shall now demonstrate to you in analyzing the blood of the dog killed with $\frac{1}{12}$ of a grain. We take the blood from the heart and large vessels, mix it with twice its bulk of distilled water, coagulate by boiling, and acidify it with a few drops of acetic acid. The acid is added for two reasons:—first, to ensure the complete coagulation of albuminous compounds; secondly, to retain the strychnine which had been introduced into the blood, as an acetate, in that state, or, if changed into another salt, to retransform it into an acetate. Our next point is to decolorize the blood; and that can be most rapidly and most effectually done by filtering it, as is now done, through crystals of sulphate of soda,—(this idea, as well as that of decolorizing the blood by boiling it with sulphate of soda, belongs to Professor Bernard,)—or through animal charcoal. The clear filtrate is now to be concentrated, and the strychnine precipitated by the addition of potash, (which, by combining with the acetic acid, sets the strychnine free.) The strychnine is next to be collected on a filter, washed, and redissolved by acetic acid. When thus purified, the physiological test is to be applied in the manner already pointed out. In the blood of the dog poisoned by $\frac{1}{12}$ of a grain of acetate of strychnine, none of the poison was detected in the blood.

POSTSCRIPT.

Since the foregoing notes were in the hands of

2nd. A frog was poisoned with one one hundred and twentieth of a grain of strychnine. Three minutes after tetanus was strongly marked, he was punctured with one five hundredth of a grain of Wourali. In seven minutes tetanus disappeared.

3rd. One five hundredth of a grain of Wourali, and one fortieth of a grain of strychnine, were injected into the abdomen of a frog at five minutes past one; at ten minutes past, it became very tetanic; at half-past one (twenty minutes afterwards) it became perfectly flaccid; and the next day it appeared perfectly well. This is the more astonishing, as the dose of strychnine in this case was certainly more than sufficient to kill it. Thus, it would appear, that strychnine might be used as an antidote for Wourali, and Wourali for strychnine.

the printer, I have made several experiments, and found the following important results:—

1. *Value of the physiological test.*—Into the lungs of a very small frog was injected a solution, containing only $\frac{1}{1000}$ of a grain of the acetate of strychnine, (equal to about $\frac{1}{1000}$ of the pure alkaloid;) in nine minutes and a half the animal became violently tetanic, and died in two hours.

2. Strychnine does not prevent the blood of animals coagulating after death; in some cases it even appears to hasten that result.

3. Death is ushered in by flaccidity of the voluntary muscles.

4. The pupils dilate during the spasms, and contract in the intervals, especially if the latter are well marked.

5. The flesh of animals killed by minimum doses of strychnine does not poison other animals—at least, I have fed a hedgehog on poisoned flesh during fourteen days without being able to detect the slightest symptom of poisoning. The poison must, therefore, have been either decomposed, or not present in sufficient quantity.

6. In animals poisoned by strychnine, the pulsations of the heart cease, notwithstanding artificial respiration being regularly kept up; but after a longer period than when no artificial respiration is employed.

7. In cases of poisoning by strychnine the muscles of the heart rapidly lose their irritability.

8. When animals are killed by large doses, the heart almost instantly loses its power of contraction, and mechanical or galvanic stimulus soon fails to re-induce it.

This can be explained by the following experiments:—

9. If the hearts of two frogs be removed from the body, and one placed in pure distilled water, the other in a solution of acetate of strychnine, the former will pulsate regularly for more than an hour, the latter will cease to beat in from one to five minutes, according to the strength of the solution of the poison. Rigor mortis speedily supervenes.

10. When the hind-legs of a frog prepared after Galvani's method are placed in separate vessels, one containing simply distilled water, the other a strong solution of the acetate of strychnia, the muscles of the former limb will continue to contract when galvanism is applied, either directly to the muscles themselves or through the medium of the nerves, long after those of the limb suspended in the poison have lost their contractile property, and perhaps even passed into a state of rigor mortis.

It would thus appear that strychnine has the power of directly destroying muscular irritability.

Valentin and others have shown that the lower extremities of a frog when freed from the skin, absorb oxygen and exhale carbonic acid in definite proportion so long as muscular irritability continues, and have also pointed out that when irritability ceases, an important change takes place in the amount of oxygen absorbed and carbonic acid exhaled. In my experiments on the blood,

strychnine was found to destroy the property possessed by the organic constituents of the liquid to absorb oxygen and exhale carbonic acid. May strychnia not act in a similar manner upon the muscles and other tissues of the body? Upon this supposition we can easily explain why the heart ceased to pulsate, and the voluntary muscles to respond to the stimulus of galvanism, when placed in a solution of strychnine, as well as to account for the fact that in animals poisoned by strychnine the irritability of the voluntary and involuntary muscles, as well as the excitability of the nerves, disappears more quickly than when life is destroyed by other means.

Dr. Brown-Séguard thinks that the action of strychnine "consists in an increase of nutrition of the nervous centres, by which excess of nutrition the reflex faculty becomes much increased." The deeper I go into the subject the further I differ from this view, and the more am I inclined to believe that strychnine acts by destroying the power of the tissues and fluids of the body to absorb oxygen and exhale carbonic acid; in a word, from thus arresting nutrition by preventing the interchange of the gases in the animal economy.

Nottingham-place, Regent's-park, 1866.

Clinical Lecture

ON

ANEURISM OF THE THORACIC AORTA.

By W. HUGHES WILLSHIRE, M.D.

ASSISTANT-PHYSICIAN TO THE CHAMBERLAIN-CROSS HOSPITAL, &c.

No. IV.

GENTLEMEN,—Since the commencement of the session we have had three examples of aneurism of the thoracic aorta in the wards; one patient has just died, and I intend to offer you, upon his case, a few clinical observations. I shall cursorily refer to the two other instances, so far as they may offer immediate illustration in assisting towards diagnosis:—"John Mc—, a bootmaker, thirty-nine years of age, admitted February 28th, 1866, states that nine months ago he began to feel a difficulty in swallowing food that was hard, it appearing to stop at the top of his breast-bone, until washed down by some fluid. Now, swallowing his drink is even troublesome, causing increase of cough. He feels also a soreness at the left side, near to where his food appears to stop. If he takes anything just before going to bed, he feels as if some of it came up to below the place of pain, but which goes down again on his making efforts to swallow. He has most pain, however, between the shoulder-blades, particularly about the fourth dorsal vertebra. There is considerable uneasiness over the top of sternum, increased and with a sense of suffocation on pressure being made over the sternal notch. His voice is rough and husky, or like a loud harsh whisper, and became

thus eight weeks ago. He breathes with a laryngeal stridor, or sort of slight tracheal sound. Both voice and breathing are frequently interrupted by a tracheal-like cough. He attributes these alterations of voice and breathing to an attack of bronchitis he had some weeks since." On his stripping, it is noticed that the superficial cervical and thoracic veins of the left side are enlarged, and along the arm somewhat tortuous, while those of the right side are normal. There is slight visible pulsation of the left brachial artery, but not of the right one. On percussion, the whole of the left side of the thorax, anteriorly and posteriorly, except towards the distal extremity of the clavicle, is found very dull, the dullness, however, increasing over the præcordial region. The right side is resonant, perhaps, to excess. On auscultation, no vesicular murmur can be heard on the left side, but here and there, posteriorly, some bronchial breathing, when respiration is slightly exaggerated. On the right side the respiration is loudly bronchial all over. The position of the heart appears normal, and neither its impulse or sounds are more forcible than proper; no abnormal bruit is to be heard, but the healthy sounds seem to be continued and heard under the left clavicle to a slight degree. The pulse is 96: respiration 28. The cough and dyspnoea present; the huskiness of voice, and dysphagia are all increased by his lying on his back or right side. There is no œdema of the left arm, or of the left side of the chest. The tongue is greatly furred, yellow-brown in the centre. The patient is tall and thin; his chief source of complaint is pain between the shoulder-blades, and difficulty of swallowing, cough when he lies down, and want of sleep. Now, having a patient with such positive symptoms, and knowing beforehand what diseases are accompanied by these symptoms, we were thus enabled, guided by the non-existence of other circumstances, and by the *couleur locale*, to venture upon a pretty sure diagnosis up to a certain point. If you review these symptoms afterwards, you will find that the chief ones indicate the existence of *pressure*. The patient was first troubled with dysphagia, caused by pressure on the œsophagus. This, it is true, a stricture *might* have produced; but you must look at the other facts of the case. There was pressure on the innominate vein of the left side, causing the veins externally to become dilated and gorged. Certain diseases of the right heart, it must be allowed, give rise to great venous turgescence. But then, it is of both sides of the neck and thorax; here it was limited to one. Again, there was a stridor of voice and of breathing, showing pressure on the recurrent nerve and greater air passages; at least, the want of other symptoms proved such stridor was not due to chronic disease of the larynx. It was further plain, that while little, or, in comparison, almost no air entered the left lung, and the passage to the right was patent, yet that the form and capacity of the right bronchus, nevertheless, was also influenced by pressure. Lastly, there was that peculiar boring and wearing-out kind of pain between the scapulae, which, along with the previous symptoms,

might lead to the suspicion of a centre of pressure over the fourth vertebra. Now, you must bear in mind that change of position, by altering *direction of force*, modified, more or less, many of the above symptoms. Here, then, we were led to say that an intra-thoracic tumour was exerting considerable pressure, because we knew that such symptoms could be caused by such tumour, and the negation of other circumstances forbade our seeking a different causation.

The next question became, what was the nature of this tumour? Solid tumour of the mediastinum, or connected with the left lung, or aneurismal tumour? The latter being much more common than the former, we first looked to the probability of its existence. Supposing there to exist an aneurism, we might have all, and were very likely to have some of these signs of pressure from it on adjacent lying parts, particularly if the transverse and descending portions of the aorta were affected; but, then, should we not have other signs of aneurism, viz.: a second centre of sound and of pulsation within the chest, (the first being the heart, you know,) and some local bulging or tumour? Now, neither of these could be detected on the closest examination anteriorly of the walls of the thorax. All that could be said was, that the heart's normal sounds appeared to be *conducted* rather more than could be easily accounted for towards or even to beneath the left clavicle. But it did not strike one as if they got there by any other way than that by which they arrive at near the right clavicle, when the lung substance is a better conducting medium than usual. Again, nowhere was there any general or local jar felt, nor was the least vibratile thrill perceptible. The want of these signs of sound, shock, and tumour, then, made me hesitate as to the centre of pressure being aneurismal; though I knew that if the descending portion of the arch was chiefly affected, the absence of the latter could be as easily accounted for as might be the presence of the boring pain over the dorsal vertebra. But then I still looked for some sound and pulsation near the latter, or between the shoulder-blades, and these were absent. From these circumstances, and the diffused dullness on percussion of the left side, I thought of solid tumour of the mediastinum, or connected with the left lung, and perhaps cancerous in nature. But then these negative conditions existed—there was no crepitation anywhere to be heard; there was no sanguinolent or "currant jelly-like" expectoration; nor did the heart appear the least intruded upon or displaced. From this I was led to observe to you at the time that further observation would be necessary before a definite diagnosis could be arrived at. For the few days the patient was in the hospital, I made it my business, for my own instruction, to repeatedly examine him, and I pondered very much about the case; and though I felt more and more inclined to think the source of pressure was aneurismal, "solid tumour" frequently came across my mind. On the fourth morning of his stay with us, I spent an hour with him and was particularly

struck with the modification of several of the pressure signs by alteration of position, and by the great dullness over and diminution of respiration in the left lung. When I left him I could not say that I was more decided in my diagnosis than I was before; the same slight doubt existed. Afterwards, I referred for guidance to some practical authors, and what Dr. Walshe said I will retail to you. He supposes a case in which the usual positive signs of aneurism are absent, from the fact of the sac being filled with fibrine, and thus closely approximating to the symptoms of solid tumour. "In truth," says he, "one is a tumour *inside*, the other *outside* the arch, and obstruction from without may have the same effect as from within on its circulation. Common to the two things are dullness and non-resilience, usually extending across the middle line, all the signs of centripetal and all the signs of centrifugal pressure. Under such circumstances, the question becomes one of pure probabilities. The conditions in favour of aneurism would be, then, situation in the course of the arch, vibratile thrill above or below the clavicle, gradually increasing nearness of pulsation to the surface, dysphagia, great pain especially of the dorsal spine, and absence of oedema of the arm and chest. The circumstances in favour of tumour and against aneurism would be the fact of the patient being a female, and under twenty-five years of age; great superficial extent of percussion dullness, especially if there were no marked attenuation of the walls of the chest; absence of any heaving motion in the affected spot; want of accordance between the sites of maximum dullness and of pulsation; and currant jelly-like expectoration, common with tumour, very rare with aneurism."

I never saw our patient alive again: after I left him he seemed cheerful and better; at eleven at night he joked with the sister, saying he felt so improved that he should "have something solid to swallow to-morrow." At three the next morning he was rapidly taken worse; the cough was incessant, the dyspnoea urgent; a slight respite came, however, but at five he was said to have died suddenly but "rather quietly." A few minutes after his death, more than a teacupful of blood was observed to flow from his mouth. The next day we examined the body. I show you now part of the contents of the thorax, and the following is a summary of what was observed: The left pleura contained a considerable amount of serum, the left lung being somewhat compressed. The heart looked small and somewhat flabby and fatty. The aorta was slightly dilated from its origin to the top of the arch, where it opened out into a large depending saccular dilatation involving a part of the descending aorta. The main portion of the tumour might be said to consist of two divisions; one, the right lateral and also somewhat posterior division, being solid and hard, from a mass of consolidated fibrine, which pressed upon the trachea just at and above its bifurcation, causing pretty close approximation of the walls of the left bronchus, and narrowing the capacity of the

channel of the right. It pressed also on the œsophagus very severely. Two circular holes, the size of a pea, existed in the trachea, just above its division, through which a probe passed to between some loosened layers of fibrine in the aneurismal sac. A large patch of ulceration with perforation, a penny piece in extent, connected the anterior wall of the œsophagus in a like way with the tumour; but here the pressure had been so severe as also to cause ulceration also of the posterior wall of the œsophagus, which lay pressed against the vertebræ, just commencing themselves to become eroded. The stomach was half filled with blood, from perforation into the œsophagus, and that discharged from the mouth at death in all probability was due to the perforation of the trachea.

Now, after all, I do not see that it would have been possible for a greater master in diagnostics than myself to have in this case apodictically predicated *aneurism*. As I show you here, the diseased mass itself seems to partake of the local characters of aneurism and of solid tumour as well. The only point I blame myself concerning, is not having more closely considered the nature and detailed characters of the diffused dullness of the whole of the left side, and which (as well as another sign or two) was due to serous effusion arising from the pressure made upon the veins of that side of the chest.

The next case of aneurism I may direct your attention to, is that of Susan C—, now in Bow ward, a poor old washerwoman of sixty, who appears to have gone through a good deal of hard work. I do not intend entering into the details of her case, but shall simply allude to it, as affording certain well-known signs of aneurism which our previous patient wanted, and as not having others which he possessed. He had *pressure* signs in perfection, but no pulsation or sound in the chest. She has the latter to a high degree, whilst the former exist in a very subdued ratio indeed. Her great and chief complaint was and is "a throbbing in her throat, and beating in her neck and right arm, which always keeps her agoing," as she expresses it. But what I most desire to call your attention to will be the better described by an extract from her case, as recorded when she entered:—"As she lies, the whole of the right infra- and supra-clavicular regions, the region of the sternal notch, and a little to the left side of the throat, pulsate forcibly and rhythmically with the right radial pulsation. A strong purring tremor, or vibratile thrill, is felt by the finger placed horizontally above the right clavicle; whilst so powerful and superficial a pulsation is perceived beneath the distal third of the clavicle as to lead to the opinion that some absorption of the intercostal muscle, if not of the first rib, must have ensued from pressure. Above the clavicle, and below at the point of chief impulse, scarcely more than a single rough systolic sound is heard; but this becomes a double rough sound as one proceeds down the chest and approaches the heart. Pulsation is felt to strike the ear all over the chest behind, but rather more powerfully at the left side, where a rough mitral

bruit is heard." This will suffice to point out to you how prominent in the present case are certain signs of thoracic aneurism which were wanting in the former one. In this poor woman there is, I believe, very great dilatation of the ascending part and commencement of the arch of the aorta, of the innominate, with involvement also of the roots of the right carotid and subclavian. Though the *pressure* signs are in her very slight comparatively, one exists—a new one to diagnosis—I must just touch upon. If you examine her eyes, you will find the right pupil is, *cæteris paribus*, always more contracted than the left one. This fact I should certainly have passed over had I not lately met with some remarks upon the point by Dr. Banks, in a recent number of the *Dublin Hospital Gazette*. You will there find some details upon the matter highly interesting; suffice it now to say, this contracted state of the pupil is shown to be a result of pressure by the aneurismal tumour on some of the cervical nerves. "According to Valentin," says Dr. Banks, "the iris is furnished with nerves from two sources. The section of the sympathetic trunk in the neck paralyzes the nerves which act on the radiating fibres of the iris from the spinal system *through the sympathetic*, and resigns the pupil to the exclusive influence of the circular fibres, or those which contract the pupil, and which are supplied from the inferior branch of the *motor oculi* nerve, and thus the pupil is kept permanently contracted." I took a hint from Dr. Banks, and got Mr. Eeck, our house-surgeon, to drop a solution of atropine in the eye, the pupil became dilated, and remained so for several days; it then returned to its contracted state, and remains so.

At the beginning of the session, some of you may recollect a man named Robert M—, in the small clinical ward. He had, we believed, aneurism of the ascending and transverse portions of the aorta. Now, in his case, some other signs existed not present in the other two examples, and he also wanted some signs they had. He had no dysphagia, no alteration of voice or breathing, no dyspnoea, and no vibratile thrill; but he had great congestion of the facial capillaries, decided cyanosis, and, as the report of his case states, "some general protuberance of both sides of his chest, at the upper sternal region, is present, but so demarcated and locally increased on the right side as to form a decided but slight conical bulging between the second and fourth ribs. Over this, it is quite dull on percussion, and a distinct systolic sound, and a *doubtful* diastolic one, can be heard, easily traceable down to the lower sternal angle of the præcordial region. Over right side and top of sternum a slight diffused jar is felt, and some think a distinct *intrinsic* pulsation can be felt by pressing the finger gently on the intercostal space upwards and inwards. This others could not experience."

These three cases, which most of you, I believe, examined, offer us, in different combinations and intensities, the chief signs and symptoms of thoracic aneurism. In the first you see mainly exemplified the *signs of pressure*; in the second, those of *aneurismal pulsation and thrill*; in the third, of

tumour, bulging, or expansion. Upon these you will find the diagnosis of aneurism of the thoracic aorta chiefly depends. This diagnosis is sometimes very easy, from the perfection of the symptoms, and their typical combination; at other times difficult, from the negation of some signs, and the peculiar combination of others; and impossible, in a few cases, from no such symptoms ever having existed sufficient to attract attention to the certain and melancholy fate impending over the sufferer from aneurismal dilatation of the great vessels within the chest.

Original Papers.

ON THE NATURE AND TREATMENT OF LEPROSY, ANCIENT AND MODERN; INCLUDING THE JEWISH LEPROSY, LEPROSY OF THE MIDDLE AGES, LEPROSY OF THE CRUSADES, LEPROSY OF THE ARABIANS, AND ELEPHANTIASIS OF THE GREEKS; WITH A DESCRIPTION OF THE FORMS UNDER WHICH LEPROSY EXISTS IN BRITAIN AT THE PRESENT DAY.

By ERASMUS WILSON, Esq., F. R. S.

(Concluded from June No., page 565.)

MORPHEA NIGRA.

MORPHEA NIGRA resembles in origin and general symptoms the two preceding forms, but differs from both in the conservation of the pigment-forming function of the skin, which is increased instead of being suspended, as in morphea alba. The persistence of this function indicates a less degree of disorganization of the integument than in the two previous states; there is no condensation and hardening of the skin; and if there be thinning, it is present in a considerably less degree than in morphea atrophica. The degree of insensibility is about the same or somewhat less than in the other kinds; the patches are rarely sunk below the level of the integument, but sometimes are rendered permanent by œdema. Patches of morphea nigra were present in all the cases of elephantiasis which have come under my observation, but I have not seen it independently of that disease; sometimes the patches are round, and not larger than a crown-piece; at other times they may be as large as the palm of the hand, in one instance the body was spotted all over with them.

The tint of colour in morphea nigra presents some variety; it is sometimes a brownish-yellow, sometimes brown, and sometimes so dark as to approach to a blackish hue. The pigment does not seem to be confined to the surface of the derma, but extends into it for some depth, not only in the walls of the glandular apparatus of the skin, where it might be expected, but also in the interglandular portion. When any erythema is mingled with the discoloration, the patches have a purplish hue; the cuticle is for the most part smooth and shining, and sometimes acquires an almost metallic brilliancy; at other times it is roughened by desquamation. In early stages of the disease there

is often an excess of sebaceous secretion united with the discoloration, which gives to the skin a greasy appearance, but later in the attack the patches are dry and devoid of secretion.

MORPHEA ALOPECIATA.

Elephantiasis produces, as we have seen, a total disorganization and complete atrophy of the skin, and necessarily destroys the secreting functions of that organ; the perspiratory, sebiparous, chromatogenic, and trichogenetic functions are suspended or arrested, and the glandular and formative apparatus of those functions is atrophied, and ultimately obliterated. On the general surface of the body, the patches of morphea are smooth and bald, or the hair covering them is colourless or white; and when, as before related, (Case 6), the patch of morphea is situated on the head, the integument is greatly thinned, and the hair-follicles are destroyed.

In the case of morphea alba of the general surface of the skin, I have shown that the pathognomonic characters of the disease are such as to point directly to elephantiasis as their source, and to leave no doubt on the mind that morphea is a relict of that bygone scourge of this country, the great leprosy; and I also believe that another affection, more common than morphea of the body—namely, Alopecia areata—is a morphea of the scalp, and hair-bearing skin; in other words, a morphea alopecinata, bearing the same relation to elephantiasis as the morphea already described.

The specific characters of alopecia areata, or, as I shall henceforth call it, morphea alopecinata, are, loss of hair in a patch of circular, and sometimes, when taking the course of a nerve, of lengthened, form, (ophiasis; tyria;) loss of sensation; loss of colour, from arrested chromatogenesis and diminished circulation of blood; and thinning of the skin, more conspicuous at the centre than at the border of the patch, sometimes approaching to real atrophy. The surface of the affected patch is smooth, from a greater or less degree of obliteration of the papillary structure of the derma, from shrinking of the follicles consequent upon arrest of their function, and from absence or diminished force of the linear markings of the skin; and it is less sensitive than natural, or totally insensible from altered nervous function, probably a consequence of morbid alteration in the structure of the nervous fibrils supplying the affected spot of skin.

Morphea alopecinata is apt to occur at all ages, and in all ranks of life, but is more common in young persons than in the adult. It is sometimes permanent, more frequently transient, but always tedious, lasting sometimes for months, and sometimes for years. When the hair returns, it may resume all the qualities of healthy hair, or remain short, white, and impoverished. It appears usually in the form of one or more circular patches, from which the hair falls off at once and suddenly, leaving a bald spot of considerable size. Sometimes, however, its origin is small, consisting in the fall of a few hairs only, and it then increases more or less quickly by the circumference. At

other times, the loss of hair extends to the entire head, and involves, besides, the eyebrows and eyelashes. These latter cases are usually inveterate, though I have seen the hair return in several instances. But setting aside all these varied appearances, the one the most characteristic of the leprosy disease is that in which the spot is of inconsiderable size, the skin white, thin, smooth, and polished, as though stretched by shrinking, and devoid of sensibility and every trace of hair, the very follicles appearing to be obliterated.

In children and young persons we are apt, and with a semblance of reason, to refer this state of the skin to defective nutrition, and it no doubt does result from defective nutrition; but a defective nutrition originating in defective innervation, and the latter in the materies morbi of leprosy. In the adult this explanation is more obvious since the period of active nutrition is over, and the insensibility of the skin points more directly to a local disorder of a nerve. A common seat of the morphea in the adult is the chin, where the bald, white, circular spot contrasts strongly in colour with the hair-bearing skin, and is peculiarly obnoxious to the sufferer.

It not uncommonly happens that this local deficiency of action in a part of the skin is associated with general want of tone in the whole system, and the treatment demanded will call for the use of alteratives and tonics. At other times I have seen benefit result from the use of mild mercurials in combination with the iodide of potassium, where a syphilitic affection had to be controlled; but the special treatment for morphea alopecinata consists of arsenic employed as a cutaneous stimulant and tonic, and local stimulants, such as acetum cantharides, compound tincture of iodine, liquor ammoniac, solution of bichloride of mercury, &c. For morphea alopecinata of the scalp, plentiful friction with the hair-brush, in addition to the stimulants already enumerated, is indicated, together with the use of a stimulating wash or pomatum. Where the scalp is denuded to a great extent, advantage is often gained by dipping the head in cold water, and exciting the skin afterwards by frictions with a towel. In a few cases this state of the skin has been attended with general emaciation, quick pulse, and irritable temperament, when I have had recourse to cod-liver oil in addition to the preceding local and alterative treatment. In general the skin becomes restored to its natural appearance, and the hair returns, although the curative change is always slow and tedious; but occasionally neither time nor treatment appears to have any remedial power over the affected skin, and the baldness becomes established permanently.

THE LEVITICAN CODE.

In further illustration of the nature of the true leprosy or elephantiasis, it will be interesting to peruse the Scriptural account of this disease, contained in the thirteenth chapter of Leviticus, so frequently referred to by medical writers. The following appears to me to be an exact and accu-

rate interpretation of this important chapter, so far as it treats on the diagnosis of leprosy :—

1. And the Lord spake unto Moses and Aaron, saying,

2. When a man shall have an eruption in the skin, *like* the eruption of leprosy, be it a tubercle, a scab, or a glossy spot; then he shall be brought unto the priest;

3. And the priest shall examine the eruption, and if the hair growing on the infected skin be changed in its colour to white, and if the morbid alteration in the skin sink deeply into it, and appear to involve the entire thickness of the skin; then the case is one of leprosy and the disease is contagious.

4. If the glossy spot be white, and affect only the surface of the skin, and the hair be not changed in colour to white, then the priest shall seclude the patient for seven days;

5. And on the seventh day, if the spot remain as it was and have not increased in extent, then the priest shall exclude him for seven days more;

6. And on the completion of another seven days, if the spot be somewhat dark, and have not spread, the priest shall pronounce the patient free from contagion; the case is one of simple *scab*.

7. But if the *scab* increase in size and spread, after he has been dismissed by the priest as free from contagion, he shall be again admitted to examination;

8. And if the priest find that the *scab* is still spreading, then he shall pronounce the case to be one of leprosy and contagious.

9. When a man is affected with leprosy, he shall be brought to the priest;

10. And the priest shall examine him, and if he find the affected skin to be white and raised, and if the hair growing upon it be changed to white, and if there be an open sore [raw flesh] in the affected skin:

11. It is an old leprosy, and contagious.

12. And if a leprosy invade the whole body from the head to the feet:

13. Then the priest shall consider, and even although the leprosy cover the whole skin, yet if it be all turned white [*lepra vulgaris*] he shall pronounce the patient free from contagion:

14. But if there be an open sore, then there is contagion;

15. For the open sore is a proof of contagion, and the case is a leprosy.

16. Or, if the sore heal and the skin become white, the patient shall come to the priest;

17. And if the priest be satisfied that the sore has healed and the skin is white, then he shall pronounce the patient free from contagion.

18. Even in the case of a common *boil* which is healed;

19. If there be a white tubercle, or a glossy spot, white or reddish in colour;

20. And the priest find the whole depth of the skin to be involved in the disease, and the hair to be turned white, it is contagious—a leprosy broken out of the boil;

21. But if there be no white hairs, if it be

quite superficial and somewhat dark in colour, then the priest shall seclude the patient for seven days;

22. And if it spread extensively in the skin, the priest shall pronounce it a contagious eruption.

23. But if the glossy spot remain, and spread not, it is a *carbuncle*, and the priest shall pronounce it not contagious;

24. Or, if in the inflamed patch of skin there be an open sore, and in the sore there be a glossy spot, either reddish or white,

25. And if the hair on the glossy spot be turned white, and the disease involve the entire depth of the skin, it is a leprosy broken out of the carbuncle; wherefore, the priest shall pronounce it contagious.

26. But if there be no white hair on the glossy spot, and it be not depressed below the level of the adjacent skin, but be somewhat dark in colour, then the priest shall seclude him seven days.

27. And if on the seventh day it be spread to a considerable extent, then the priest shall pronounce it contagious; it is leprosy.

28. But if the glossy spot be stationary, and spread not, but be somewhat dark in colour, it is an inflamed swelling of the carbuncle, and not contagious.

29. If a man or woman have an eruption on the head; or a man, on the hairy part of his face;

30. The priest shall examine it, and if he find that the disease sink deeply into the skin, and the hair growing from it be yellow and thin, he shall pronounce the disease to be contagious—it is a *dry scall*, even a leprosy of the head or beard.

31. If, however, it be no deeper than the surface of the skin, and it be without hair, then the patient that hath the scall shall be secluded seven days:

32. And, on the seventh day, if the scall be not spread, and if there be in it no yellow hair, and it affect only the surface of the skin,

33. The patient shall be shaven, but the scall shall not be shaven, and he shall be secluded another seven days:

34. And on the seventh day, if the scall be not spread, nor be deeper than the visible surface of the skin, then the priest shall pronounce the patient to be free from contagion:

35. But if after this the scall spread,

36. The priest shall examine him again, and if he find that the scall has really spread, he need not seek for yellow hair, the disease is contagious;

37. But if the scall continue stationary and black hair has grown up therein, it is healed and no longer contagious.

38. If a man or woman have in their skin glossy spots or white glossy spots,

39. The priest shall examine them; and if the glossy spots be darkish white, it is a freckled spot and not contagious.

40. And a man may be bald, from the fall of his hair, without contagion;

41. And a man may be bald on his forehead without contagion;

42. But if there be on the bald head or bald forehead a white reddish sore, it is a leprosy :

43. Then the priest shall examine it ; and if there be a white reddish tubercle like that which in leprosy appeareth on other parts of the skin,

44. He is a leprous man and the disease is contagious.

Now the pathognomonic signs of leprosy, as described in this chapter, are : 1st, a glossy spot in the skin ; 2nd, the disease penetrating the entire thickness of the skin ; and 3rd, the hair growing from the affected skin being white or yellowish and faded ; to which may be added, as signs of an advanced stage of the disease, 4th, a rising or tubercle of a whitish or reddish-white colour, with or without fungous granulations (quick, raw flesh) ; and 5th, an ulcer, (raw flesh). The favourable signs, on the other hand, are : spots of a dull white (*lepra vulgaris*), instead of glossy white, or glossy and dusky ; the limitation of the disease to the visible surface of the skin ; and the absence of any change in the hair.

Judging from the language employed in verses 3, 4, 21, 25, 30, 31, 32, 34, I am inclined to think that the Hebrews restricted the signification of the word "skin" to that part of the integument which at the present day we call *cuticle* ; hence the distinction which is made between the visible surface of the skin, as in verse 4, and the entire thickness of the skin—the *cutis* or *derma* of modern writers—as in verse 3. The text of the two verses is as follows :—Verse 4. "If the bright spot be white in the skin of his flesh, and in sight *be not deeper than the skin*." Verse 3. "And the plague in sight *be deeper than the skin* of his flesh." This distinction in reality constitutes one of the most important points of diagnosis between real leprosy and affections of the skin otherwise resembling leprosy ; while, on the other hand, I can see nothing either in the expressions used, or in any part of the chapter, to lead to the inference that a subcutaneous disease is implied.

In verses 20 and 21 some little difficulty is imported into the subject by the apparent substitution of the word *lower* for *deeper*. Thus : if "in the place of the boil there be a white rising," and if "it be in sight *lower* than the skin ;" but "if it be not *lower* than the skin," &c. It would seem by these words as if *depression* of the affected skin were implied—a condition distinct from depth, and having reference to the morbid alteration of the skin only in its effects as producing a disorganization and thinning of the skin, which actually does take place in elephantiasis ; but the context is opposed to this signification of the word. A "rising" cannot be said to be "lower" than the skin ; whereas lower than the skin may mean deeper than the apparent surface. I should have thought it unnecessary to dwell on this variation in terms, but for the fact that in a subsequent verse the perplexity is increased, inasmuch as the word *lower* can have no other meaning than *depressed* :—Verse 26. "But if the priest look on

it, and behold there be no white hair in the bright spot, and it be no *lower* than the other skin, but be somewhat dark, then the priest shall shut him up seven days."

Another observation to be made in connexion with the 13th chapter of Leviticus is, that the term "plague" is used synonymously with eruption ; a plague of leprosy means simply an eruption of leprosy, while *leprosy* is employed as a generic term, and includes any spreading eruption, as well as the more malignant disease, elephantiasis, or true leprosy. Thus verse 8. "If the priest see that behold the *scab* spreadeth in the skin, then the priest shall pronounce him unclean ; it is a leprosy." Again, verses 12, 13. "And if a leprosy break out abroad in the skin, and the leprosy cover all the skin of him that hath the plague, from his head even to his foot wheresoever the priest looketh, then the priest shall consider, and behold if the leprosy have covered all his flesh, he shall pronounce him clean that hath the plague ; it is all turned white, he is clean." The disease here referred to is evidently the *lepra vulgaris* of the present day, the *boak* or *bohak* of the Hebrews and Arabians, the *alphos* of the Greeks—a known non-contagious affection.

If, in the next place, we inquire, what are the forms of disease set down as varieties of contagious leprosy in the Levitical code, we shall find them to be *ten* in number, as follows :—

1. A glossy spot (verse 2. *Berat Heb.*) penetrating the whole thickness of the skin, and on which the hair is white, is a contagious leprosy. (Verse 3. *Tsorat, Berat lebena, Heb.*)

2. A glossy spot, affecting the surface only of the skin, the hair remaining unchanged, (verse 4 ; simple *scab*, verse 6,) but spreading in the skin, (verses 7, 8,) is a contagious leprosy.

3. A glossy spot, white and somewhat raised, having within it a fungous-looking sore, the hair being white, is an old contagious leprosy, (verses 10, 11.)

4. A fungous-looking sore, (verses 14, 15,) occurring in a person affected with a white leprosy (*boak*) covering the whole body, (verses 12, 13,) is a contagious leprosy.

5. A white elevation, or a glossy white or reddish spot, (verse 19,) penetrating the entire thickness of the skin, on the site of a healed boil, (verse 18,) the hair of the affected skin being white, (verse 20,) is a contagious leprosy.

6. A glossy spot, either reddish or white, and accompanied with white hair, occurring in the midst of a carbuncle in course of healing, and penetrating the entire depth of the skin, is a contagious leprosy, (verses 24, 25.)

7. The same as variety 6, without white hair, not depressed, somewhat dark in colour, but spreading, (verses 26, 27,) is a contagious leprosy.

8. A spot on the head or beard, accompanied by yellow, thin hair, and affecting the entire thickness of the skin, is a "dry scall," (verse 30,) a contagious leprosy.

9. A spot on the head or beard, perfectly super-

ficial, without change in the hair, but spreading, (verse 36,) is a contagious disease.*

10. A white-reddish elevated sore, occurring in a bald person, and where the absence of hair excludes one feature of diagnosis, the reddish sore being like that which appears on any other part of the body in a leprous person, (verses 42, 43, 44,) is a contagious leprosy.

In other words, and more summarily defined, the ten varieties of contagious leprosy of the Levitical code are:—

1. The Tsorat or Berat lebena, *Heb.*; Beras bejas, *Arab.*; Lepra, leuce, *Gr.*; Elephantiasis Græcorum; the bright white leprosy, true leprosy.

2. A spreading scab; probably an eczema.

3. The Tsorat, with fungous sore.

4. Fungous sore in conjunction with lepra vulgaris; the latter being the boak, *Heb.*; lepra alphas, *Gr.*; dull-white leprosy.

5. White elevation, with other signs of Tsorat, issuing from the cicatrix of a boil.

6. The Tsorat, issuing from a carbuncle.

7. The dusky-spreading Tsorat; the Berat cecha, *Heb.*; lepra melas, *Gr.*; dusky or nigrescent leprosy.

8. A dry scall on the head or beard; deep.

9. A dry scall on the head or beard; superficial, but spreading.

10. A white-reddish, elevated sore, on a bald person. A Tsorat, or Berat lebena.

Now, of the ten varieties of disease here designated under the generic term leprosy, it would appear that only eight deserve to be considered as the true leprosy, or elephantiasis—namely, the first, which may be taken as presenting the specific type of the disease; the third and fourth, which add the fungous sore to the specific type; the fifth, being the specific type developed in the scar of a boil; the sixth, the specific type arising in a carbuncle; the seventh, a variety of the specific type distinguished by its dusky colour; the eighth, a “dry scall,” involving in morbid alteration the entire depth of the skin; and the tenth, being the specific type occurring on the head of a bald person. The remaining two varieties are, the second, a spreading scab, probably an eczema; and ninth, a “dry scall,” affecting the skin only superficially, but exhibiting a tendency to spread. For the latter reason alone—namely, their progressive increase—they are classed with a contagious disease, as demanding, although not contagious in themselves, seclusion from healthy persons.

Henrietta-street, Cavendish-square, 1854.

* It is worthy of remark, that the word *disease* is used in this place (verse 36) instead of *leprosy*; although there can be no doubt from the context, beginning with verse 29, that the disease leprosy, is intended.

ON ANTIMONIAL POISONING: A PHYSIOLOGICAL AND EXPERIMENTAL STUDY.

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No. 1.

As it is my intention, in the following essay, to endeavour to dig up a little new ground on the subject of antimonial poisoning, rather than to recall attention to observations already recorded in the literature of medicine, I shall refer to but one or two matters of an historical kind.

Antimony, as a medicinal or a poisonous agent, seems to have been first supplied to the world by the alchemists towards the close of the fourteenth century. It was known to the Greeks and the Romans under the name which it still maintains in chemical language—viz., stibium; and as a metal many remarkable chemical properties were attributed to it. Basil Valentine, a German monk, first drew attention to its medicinal qualities in a work entitled “*Currus Triumphalis Antimonii*.” Valentine lauded some preparation of antimony, which he had himself invented, as a specific for almost every form of disease; but owing, possibly, to the extent of this pretension, he did not succeed in establishing its claims. The origin of the term antimonium is said by Dr. Mayne, who follows Dr. Pereira in this matter, to be, “*avri*—for or against—and minium—vermilion, because used by females in aid of the rouge used for heightening the complexion.” I do not know from what data this derivation is obtained, but certainly it is not the one handed down by history. The tradition regarding name is connected with Basil Valentine aforesaid, who, having, we are told, observed that a preparation of antimony, thrown to some hogs, first purged them, and then made them grow fat, thought it would be at once an interesting, scientific, and perhaps humane experiment, to see whether it would have a similar happy effect on the sacred wearers of the cowl and cross. With these excellent intentions, and reserving his own person for after research, he dosed his fellow-monks in the same manner as he had seen the pigs so successfully treated. Such, however, was the perversity of human nature, or such the error of the *experimentum crucis*, that the result, as often occurs in experimental inquiries, was not in strict accordance with *a priori* reasoning. The monastic constitution, reduced, no doubt, by prayers and long fasts, rebelled against such strong food. It was death that fattened on the experiment, not the monks, the whole of whom died after tasting the promising potion, leaving the bereaved Basil to write ultimately his “*Currus Triumphalis Antimonii*.” Hence, says tradition, the origin of the name—*avri*—against; *μοναχός*—a monk,—the stuff that would not agree with the monks—*antimony*.

About a hundred years after this event, the famous Paracelsus re-introduced antimony into the medical world. But it was received with dis-

favour, and the Parliament of Paris, deeming it a dangerous poison, passed a law against its use as a medicine; and Beasier, a Parisian physician, was positively expelled the faculty for so employing it. At last it was recognized as a medicinal agent, and in 1837 it was entered in the State Register of Medicine of Paris, classed under the head of "Purgatives."

The most violent opponent of antimony about this period was one Gui Patin, a distinguished physician and professor, who, in the Royal College of France, succeeded to the chair of the famous Riolan, to whom our Harvey wrote his immortal disquisitions. Gui Patin's tirade against antimony is embodied in his letters, and is entitled the "Martyrology of Antimony." He herein drew out a list or register of the persons who had been killed by the physicians with this remedy, and said many very bitter things in support of his arguments.

But when once introduced fairly into medicine, the virtues, real or supposed, of the new drug soon outdid all the clamours raised against it, and in one or other of its preparations it has retained its reputation to the present day. At various times, various forms of antimony have been medicinally used. At one time, after being melted and cast into cones, the metal itself was thrown into diet drinks and herbal decoctions, as a remedy against scurvy. There was once in vogue "an antimonial cup," made of glass of antimony—an impure oxide, which was said to confer a purgative property on every liquid that was placed in it. The sulphuret, the chloride, the oxi-chloride, the oxide, and many other forms, have been received also with great favour. We have in this day accepted the tartrate of potash and antimony as the most active and available compound. It has the advantages of being cheap, soluble, tasteless, and decided in its effects.

The physiological properties of antimony have been variously classified and commented on by different writers. At first it was mainly approved of as a purgative, then as an emetic, then as a diaphoretic and diuretic. At one period it was considered a specific in acute mania, at another time it had great reputation as an antiscorbutic. Cullen classed it amongst the "stimulants;" modern authors have set it down as a powerful "sedative." These are but words, very useful to the mystics.

The popularity of tartar emetic in modern days for the cure of inflammatory affections is in great part due to Laennec, who prescribed it boldly, and with great success, in pneumonia. The profession has recognized it as a safe medicinal agent, and consider that they have at command all its peculiar properties, which they can bring out according to the dose they prescribe. This is generally correct; but one does now and then in practice meet with cases where the results are anomalous. I have recorded one case in which three grains of this salt induced symptoms which nearly proved fatal; and another case in which fifteen minims of the wine produced serious depression for several

days. The causes of these departures from the general rule remain for explanation.

Doses of antimonial poisoning ending fatally are either extremely rare, or the effects of the drug have been so overlooked, or misunderstood, that death from antimony has been attributed to death from disease. If this latter error has really been committed, it has been a serious one indeed; for the number of times that antimony is prescribed must be incredible. Looking back at my own career for the last eight or nine years, I compute that I have prescribed antimony, often in full and frequently-repeated doses, to at least two thousand persons. I instance this, simply to prove how important it is that we should possess sound physiological views regarding the true *modus operandi* of this much-used drug.

Speaking from general observation regarding the effects of antimony on the body, I have always inferred that it is a safe medicine. I have seen all its effects. I have seen it act as a purgative, as an emetic, as a diaphoretic, and as a diuretic. I have watched its effect in depressing the circulation; and, in one instance, in the case of an Essex farmer, suffering from acute pneumonia, and who took half a grain of tartar emetic every three hours for six days, I witnessed the peculiar eruption on the skin which sometimes appears. The body was so generally covered with pustules, that the friends of the patient mistook the eruption for small-pox—a natural error. But in all these observations, which run current I doubt not with the experience of my professional brethren, I have never, except in the two instances described above, suspected that the drug was exerting any other than a curative effect. When the medicine has purged, I have usually observed that the skin was dry, and have accounted for the purgation by supposing that the abundance of one excretion was the result of the partial suppression of the other—a fair physiological inference.

When fatal cases under antimonial treatment have occurred, the result, if I have not been deceived, has been due to the disease, not to the remedy. If I have been deceived, the error has arisen from the fact that antimony sets up an under-current of symptoms which have not been as yet understood or explained.

The symptoms usually laid down as specific evidence of antimonial poisoning are such as arise from the administration of the drug in a large dose—say from ten to forty grains. Few cases of this kind have been recorded, and the greater part of them are collected by Dr. Taylor in his "Medical Jurisprudence." The leading features of these cases were, vomiting, purging, spasms—symptoms, in a word, analogous to those of cholera.

The pathological lesions were, injection of the peritoneum; an inflamed aspect of the duodenum; a whitish-yellow viscid secretion throughout the alimentary canal; intense redness of the stomach, in the course of the greater curvature, but without ulceration; great vascularity of the brain. In one case there was effusion into the right pleura; the lower lobe of the right lung was redder than

usual. These symptoms and pathological lesions were the results due to the administration of one large and fatal dose. They are, comparatively speaking, easily accounted for.

But may antimony prove fatal in a more insidious way from small and continued doses? That is the great point for inquiry.

It is obvious that, to learn any new fact under this head, we must fall back upon a system of rigid, unbiased, and laborious physiological research of the comparative kind. From the diseased subject, under antimonial treatment, we can never eliminate fairly and rigidly the true influence of the medicine on life; for the symptoms of the disease complicate the symptoms produced by the medicine, and the pathology of the disease rubs out the pathological characters induced by the drug.

The physiological facts which we at the present time possess, regarding the effects of antimony, are very limited. Pereira sums them up in his peculiarly comprehensive and masterly style. Herbivorous animals bear larger doses, as it would seem, than animals of the carnivorous or omnivorous kinds. Magendie found that tartar emetic produced the same effects, when thrown into the veins, as it did when given by the stomach. He considered that its chief action was confined to the intestinal canal and lungs. Traces of pneumonia, gastritis, and enteritis were found after death. Rayer, Bonnet, and Campbell found no such lesion of the lungs. Orfila has detected antimony in the viscera of animals to whom it had been given by the mouth. In further experiments also recorded by Orfila, and referred to with great effect by Dr. Webster, in a letter to *THE LANCET* of January it is stated, on direct experiment, that antimony may be found in some of the animal tissues at periods of three, and even four, months after it has ceased to be administered.

These details, with the addition of one or two others, in which it has been shown that ligation of the œsophagus increases the depressing effects of antimony, and that division of the pneumogastric nerves checks the efforts to vomit, comprise almost all that has been done, in the way of direct experiment, on the subject of the physiological action of antimony.

Under such circumstances, I have thought that it would of necessity be a rich and useful study to make a careful experimental inquiry, of a physiological character, into this wide and open field of research. The points which seem to require closest investigation are as follows:—

1. By what surfaces may antimony be received into the body?
2. Its diffusion throughout the system, and its election by different organs.
3. The mode of its elimination, and the periods at which it is eliminated.
4. The physiological changes, or, in other words, the pathological conditions, to which it gives rise.
5. The modes in which it destroys life, when it acts as a fatal poison.
6. The chemical changes which it itself under-

goes in the organism, and the special effects of its different preparations.

For the purpose of instituting a basis of illustration and argument on each of these inquiries, I pass now direct to the detail of experiment.

EXPERIMENT I.—Injection of Tartar Emetic into the Cellular Tissue.—A large dog, in good condition, was selected for experiment. I took up a small fold of skin in the abdominal wall on the right side, and made an incision through it with the point of a scalpel, sufficiently large to permit of the introduction of a small canula. The canula was pushed easily into the cellular tissue beneath, and through it one drachm of tartar emetic, in solution of two ounces of distilled water, was gently injected with a glass syringe. The salt used was proved, by previous experiment, to be free from arsenic, and was obtained pure for the purpose. The whole of the solution passed readily under the skin, and the operation gave but little pain. On withdrawing the canula, a cross-stitch was passed through the wound, and none of the fluid escaped. The injured part was carefully swathed over, so that the animal could not lick it, and he was closely watched. He made no attempt in this direction, and indeed paid no attention to the wound. For the first half-hour after the operation, no peculiar symptom was observed; the animal moved about cheerfully, and evidenced no sign of pain or inconvenience. At the end of this time, he shivered, and immediately afterwards vomited freely. He now became slightly prostrated, and in the succeeding half-hour made numerous attempts to vomit, in some of which efforts he threw off a mucous fluid and solid matters. He also passed flatus freely and frequently from the bowels, and was once briskly purged. At the expiration of an hour, the body had become quite powerless, the limbs were cold, the breath was cold, the pulse and the respirations were greatly reduced, and death was slowly taking place. There was no spasm, no expression of pain, but rather a comatose sinking, without further evacuations of any kind. Death supervened just one hour and forty minutes after the operation, the respiration becoming gasping at last, and outliving the heart's action for full three minutes.

Post-mortem Examination.—The body was opened twenty hours after death. Dr. Herbert Barker, of Bedford, to whom I am indebted for much laborious assistance in this inquiry, was present. There was marked cadaveric rigidity. On laying bare the part where the cellular tissue was injected, slight traces of fluid were found diffused over a space of about the size of the palm of the hand, but there was no special mark of redness. The particular appearance of the internal organs was an intense congestion. The large venous channels were distended to the last degree; both sides of the heart were distended; the aorta was full of blood. The lungs were inflated, dark, and full of blood; but showed no traces of inflammation. The bladder was empty; the kidneys were of a dark purple colour. The blood generally

was fluid; but in the left auricle there was a small separation of fibrine lining the cavity or modelled to it; the gall-bladder was full of bile, and the liver dark. The whole of the alimentary canal was carefully examined; but the only peculiarity of the mucous coat was in the stomach, the inner surface of which, along the larger curvature, for the extent of a space two inches long and one and a half broad, was of a bright pink colour, contrasting strikingly with the surrounding parts. The stomach contained about an ounce of a clear fluid, slightly yellow in colour; the intestinal canal was coated thickly with a glairy buffy-looking mucus, but contained no solid matters. There was no ulceration at any point of the alimentary service.

Chemical Analysis.—The parts reserved for separate analysis were the vomited and purged matters, the contents of the stomach, the stomach itself, the rectum, the lungs, the heart, the liver and spleen, the blood collected from the large veins, heart, and aorta (five drachms), the small intestines, the contents of the intestines, the bladder, and kidneys.*

The results of the analyses, which were qualitative only, were as follows:—The blood yielded abundant evidence of the poison more than any other part; the vomited and purged matters gave a considerable amount; the rectum a considerable amount, but less than the vomited matter; the lungs less than the rectum, but considerable; the liver less than the lungs, but considerable; the stomach less than the liver, but considerable; the bladder and kidneys less than the stomach, but considerable; the small intestines less than the bladder and kidneys, but also considerable. The contents of the intestines gave the same amount of evidence as the intestines themselves. The contents of the stomach yielded distinct traces, but little in proportion to the other parts. This arose from the fact that the amount collected for analysis was very small, the stomach having been emptied during life by the vomiting.

In this inquiry, sixteen analyses were made. The blood seemed to be the principal seat of the poison.

EXPERIMENT II.—Inhalation of Antimonuretted Hydrogen Gas.—A store of antimonuretted hydrogen was made, by adding to diluted sulphuric acid and zinc, six drachms of tartar emetic in a Wolf's bottle. The gas was collected in the usual way. All the chemicals used were tested previously, and found to be free from arsenic, and in all respects pure.

A young dog was now placed in a glass cham-

ber, capable of holding 3000 cubic inches of atmospheric air. The chamber was air-tight; but an opening armed with a stopcock, was fixed in the top, for the admission of the gas, while another opening, in the bottom, secured with a water-valve was so arranged that the introduction of the gas should lead to a displacement of air, to an extent equal to the amount of gas introduced. After the animal had become quiet, 100 cubic inches of the gas was slowly thrown into the chamber, and this operation was repeated every twenty minutes so long as the experiment continued, 100 cubic inches of pure air being driven in with each dose of the gas. In the atmosphere thus modified, the animal lived three hours and fifty minutes, in the course of which time 1000 cubic inches of the gas were passed into the chamber, with the same quantity of fresh air, which was introduced to prevent the complication that might arise from carbonic acid.

For one hour and forty minutes after the inhalation no peculiar symptom at all was presented. But at this time the animal suddenly became copiously purged, without any evident pain. The evacuation was fluid and dark. Ten minutes later the breathing became quicker, running up from thirty to forty-eight respirations per minute. Ten minutes later there was copious vomiting. During the succeeding half-hour the respirations fell to thirty-six per minute, and the animal reclined in a prostrated, listless state, making no further efforts either to purge or to vomit. When spoken to, he raised up briskly, and showed no evidence of pain, but decided prostration. The respirations now began to fail, and gradually sunk. Three hours and forty-five minutes after the commencement of the operation he seemed to have ceased to breathe, the action of the heart had stopped, and I thought he was dead; but at intervals of one minute and a half, he made three several long gasping inspirations, and then altogether ceased to exist.

The post-mortem examination was made forty one hours after death. Dr. Snow lent me his kind assistance. The cadaveric rigidity was not well marked. As in the previous case, the most striking pathological symptom was intense congestion of all the viscera, and of the bloodvessels. The blood, as before, was loosely coagulated, and about half an ounce was collected for analysis. The lungs were inflated, but full of blood. The bronchial surface was pale, but coated freely with a frothy mucus. The lungs showed no sign whatever of inflammation. The heart was charged with blood on both sides, and the aorta was full of blood. The brain was congested. The liver and kidneys were also congested. The stomach contained about six drachms of a clear fluid. On its inner surface, and in the course of the large curvature, there was the same kind of redness as in the previous case, and mapped out in a manner almost identical. The intestines contained a thick white glairy mucus, but no solid matters. Their mucous coat was nowhere injected, and there was no ulceration at any point of the alimentary sur-

* It will save time to state in this place, that in these first chemical analyses I have trusted mainly to the hydrogen-test, which, when worked with due care, is at once the most direct, simple, and certain process. In applying this test, I have, however, used a larger apparatus than that of Marsh, but constructed on the same principle. I have thus been able to keep up a long-continued flame from the jet, and to detect the presence of the antimony with great minuteness. In every instance the purity of the chemicals has been rigorously tested as a preliminary step. In some experiments, Reineck's test, and the sulphuretted hydrogen test, have been resorted to, but only for corroborative evidence. Osler, in his experiments, used the hydrogen test with equal success.

face. The bladder was full of urine. The pleural cavity contained six drachms of a pinkish serum, which, on being poured into a test-tube, coagulated firmly into a jelly-looking coagulum, from which clear serum exuded.

The parts chemically examined are indicated in the following results of the analyses:—

The liver yielded abundant evidence of antimony, more than any other organ. The vomited and purged matters yielded abundant evidence. The contents of the stomach gave abundant evidence. The stomach itself, which had been well washed prior to the analysis, yielded a bare trace. The brain yielded no trace. The heart yielded no trace. The blood gave distinct evidence, but not so marked as in the previous experiment: four drachms were obtained for the analysis. The lungs gave well-marked evidence, but much less than the liver and the excreted matters. The intestines and their contents, taken together, yielded abundant evidence. The kidneys and bladder gave slight traces. The urine gave abundant evidence. The secretion in the pleural cavity yielded distinct evidence. It seemed that in this instance the liver was the principal seat of the poison at the time of death.

It should be remarked, that in this experiment the animal was placed under the influence of hydrogen gas, which is a narcotic of a low power—perhaps, indeed, only a negative narcotic, like nitrogen. The presence of the hydrogen could not, however, have had much influence, as nothing like deep sleep or insensibility was observed during the time of the experiment.

EXPERIMENT III.—Introduction of Tartar Emetic by a Wound.—At my request, Dr. Barker, of Bedford, performed the following experiment: From the back of the neck of a full-sized dog, the hair was removed for a space of the size of the palm of the hand; a crucial incision was made in the part, and the wounded surface was dressed with tartar emetic ointment, made by mixing up an ounce and a half of the salt with four ounces of lard. The wound was dressed with this ointment every morning for seven days. The application gave rise to but little local mischief, except that the temperature was slightly raised, and that a slight oozing of matter took place from a point removed a slight distance from the wound. From the time of the first dressing, the animal lost appetite, but throughout was neither purged nor vomited. He refused food, became gradually thin and exhausted, and died as from inanition, without any other remarkable symptoms.

The dog was sent to me directly after death; I examined him seventy-two hours after the fatal result. The cadaveric rigidity was well marked. In this as in the preceding cases, intense congestion of the internal organs was the most striking general appearance of a pathological kind. The blood was fluid, and such few clots as were met with were loose and dark in colour. The heart was filled with blood on both sides: the aorta was full of blood. The lungs were inflated, of a pink colour, and much less free from congestion than

the other organs. There was no indication whatever of pulmonary inflammation. The bronchial membrane was healthy. The liver was congested; the spleen natural. The stomach contained ten drachms of a very dark, thick, bloody-looking mucus. The inner surface of the stomach had the same red appearance seen in the before-named cases, mapped out much in the same manner and situated in the same locality. There was no ulceration. The intestines held no solid matter, but were thinly coated with a bloody mucus, like that in the stomach. The whole of the intestinal canal was injected, and the colon and rectum presented bloody spots as from a rupture of the minute vessels, but there was no actual ulcerated spot. The kidneys were of a purple colour, from congestion. The bladder was full of urine.

The results of the analysis in this case were as follows:—The brain contained no trace of the poison. The lungs gave marked evidence of its presence. The heart gave very abundant proof of the presence of the poison. The blood yielded only traces (seven drachms was the amount acted on.) The contents of the stomach (ten drachms) yielded abundant evidence. The stomach itself, after being washed, yielded distinct evidence. The liver and spleen yielded a much greater amount than any other structure. The kidneys yielded distinct evidence. The urine gave distinct evidence. The rectum gave abundant evidence. The contents of the intestines gave abundant evidence. The intestines themselves gave distinct evidence. The soft parts of the back of the neck, at the point where the antimonial was applied during life, yielded the barest trace of antimony.

In this experiment we see that antimony, received slowly into the system, may cause death—may be present in almost every organ, and yet may not excite, during the lifetime of the animal, any of the symptoms of vomiting, purging, and spasms, which are usually set down as the specific signs of antimonial poisoning.

The liver, in this instance, was again the chief depot of the poison.

Hinde-street, Manchester-square, May, 1856.

ACCOUNT OF A MODE OF RESTORATION IN PULMONARY CONSUMPTION.

By THEOPHILUS THOMPSON, M.D., F.R.S.

RECENT researches have exercised a material influence on our views regarding the course of various diseases, and on our estimate regarding the amount of benefit to be derived from remedies. Illustrations of this truth especially abound in that department of medicine to which auscultation particularly applies. The accurate descriptions furnished by modern pathologists of the ravages induced by tubercular disease, and the application of the method of investigation suggested by the genius of Laennec, combined for a time to render our views of such disease in a high degree discouraging; so that, for a considerable period in

the recent history of medicine, to declare a patient consumptive was considered equivalent to pronouncing him to be the subject of irreparable and probably rapidly-fatal disease. Since the time of Laennec, however, assiduous cultivation of the means which he proposed, by enabling us to detect tubercular disease at its commencement, has supplied evidence that the average duration of pulmonary consumption exceeds the limit commonly assigned; and has afforded better opportunities for determining the influence of hygienic measures, when the malady is but just commencing. Researches conducted with the aid of the microscope, by throwing light on the earliest changes of structure occasioned by disease, even before any indications are afforded by auscultation, serve more forcibly to impress us with the conviction that some forms of phthisis may exist consistently with a discharge of the active duties of life; whilst, by enabling us to trace minutely the series of retrogressive changes, these researches render us cognizant of instances and modes of restoration previously unsuspected, or only surmised. It is proposed, in this communication, briefly to describe a process of cure in one of these varieties of phthisis, and to delineate some of the early symptoms.

When we speak of the cure of phthisis, the idea usually suggested to the mind is that of a closed vomica; the accidental tissue which encloses the cavity being contracted, and drawing with it the pulmonary substance, so as to produce external puckering; whilst within, there is presented an imperfect cicatrix of fibrous material. This change, however, I suspect, is not so frequent as that to which I propose to invite the attention of the profession, occurring in certain cases where the tubercular deposit is in small masses surrounded by healthy portions of lung. The exudations poured out around a tubercular deposit may prove nutritive, and conduce to its maintenance; but, on the other hand, if incapable of development, they may rapidly degenerate, and softening may ensue; and the pulmonary tissue may become infiltrated with tubercular pus, abounding in solitary molecules, masses of fat globules, nuclei, and incomplete cell formations. The process of disintegration thus set up, unfavourably affecting the surrounding texture, the process of destruction extends; but under more favourable circumstances, the tubercular substance may undergo a different kind of metamorphosis, and, its development ceasing, it may waste, in consequence of the withdrawal of nutritive material; the organic elements may be absorbed, leaving only calcareous salts, combined with aggregated fat globules, pigment masses, and plates of cholesteroline. This change is not uncommon. It may, I think, often be traced in a certain class of delicate dyspeptic individuals whose vital powers have been husbanded. One of the most remarkable signs which I have found accompanying this form of tubercular disease is the modification of the respiratory sound, which I have ventured to designate "wavy inspiration," because it conveys to the ear the impression that the air enters by a succes-

sion of waves instead of a continuous stream. There are several varieties of wavy inspiration, more or less extensive, variable, and transient: one, dependent on bronchial affection, usually accompanied with rhonchus; a second, of high key, associated with rheumatism of the muscles of the chest; a third, combined with pleuritic friction sound, and increased by pressure: but the variety which has special reference to the affection under consideration, is a delicate, somewhat distinct sound, limited in extent, and usually persistent until superseded by signs of more advanced disease. Several of these varieties of wavy inspiration may, indeed, be associated in the same individual, but may still be distinguished and interpreted, as in the patient whose case I proceed to describe.

Mr. C—, a gentleman aged thirty-two, residing in one of the suburbs of London, applied to me on the 16th of March, 1854, complaining of weakness and of slight cough. He was five feet ten inches in height, and weighed nine stone eleven pounds. At the General Exhibition in 1851, he weighed nine stone twelve pounds, but soon afterwards lost flesh; subsequently he increased in weight, but recently had again declined. One of his sisters died of phthisis, another had threatenings of the disease, but recovered. Two years since he had slight hæmoptysis in streaks, and had lately occasionally awoke with blood in his month. There was slight dulness on percussion near the acromial end of the right subclavicular region, but the principal physical signs were on the left side, consisting of wavy inspiration over the whole apex before and behind, at some parts accompanied with friction sound, and increased by pressure, and attended with superficial pain. The pulse was 88 in the sitting, 116 in the standing posture; the gums presenting the festoon common in consumptive subjects; tongue rather white; bowels regular; urine depositing lithates. I prescribed a turpentine liniment, a grain of extract of colchicum, every night, and saline draughts, with hydrocyanic acid.

March 20th.—Wavy inspiration of lower key, and less extensively heard; a little above the left nipple sounding distant, and not increased by pressure; expectoration dotted with blood, and, under the microscope, found to contain pus globules, granules, and *elastic tissue of the lungs*, teased out as though long imprisoned; also much large angular epithelium from the fauces. In correspondence with this last observation, the fauces were flushed and granular. I prescribed lemon-juice, prussic acid, and tincture of hop, with infusion of cascarrilla.

26th.—Weight, nine stone ten pounds; wavy inspiration still marked; fauces very granular. I directed a continuance of the mixture, two drachms of cod-liver oil twice daily, and an application to the fauces, composed of equal parts of trisnitrate of bismuth, mucilaginous mixture, almond oil, and rose water.

On the 3rd of April, the throat appeared better; the pulse was 84; other symptoms as before, excepting that there was much night perspiration,

for the relief of which I prescribed four grains of oxide of zinc, and four of extract of henbane, to be taken every night.

On the 18th of April there was some click, ("humid crepitation") above the left nipple; pulse 88; weight, nine stone nine pounds. The dose of cod-liver oil was increased.

May 1st.—He was somewhat improved in feeling and appearance, but there was "dry glass-rubbing sound" at some points of the left apex. A blister was therefore applied over this region.

17th.—Weight, nine stone twelve pounds; pulse reported to be 66 when he awakes in the morning. To have of iodide of potassium two grains, ten minims of solution of potash, with infusion of cascarrilla, three times a day, and to continue the oil.

June 10th.—Weight, nine stone thirteen pounds; throat decidedly better, but the click continuing.

18th.—Weight advanced to ten stone one and a half pounds, although for some days rather free hæmoptysis had occurred. After a few doses of sulphate of magnesia with infusion of roses, the spitting of blood ceased; but the bowels being confined, diluted aloetic pills were administered.

After this date the click near the left nipple extended. On August 15th the patient's weight had fallen to nine stone eleven pounds, and the pulse risen to 92. The throat was relaxed, and the tongue white. The dose of cod-liver oil was increased, and he was directed to have a tannic-acid gargle, and a mixture of nitro-hydrochloric and hydrocyanic acid. During the two following months there was little change, excepting slight increase in weight. There was slight hæmoptysis and some night perspirations, but the latter symptom yielded to oxide of zinc. On the 16th of October his general feelings were improved, but the pulse was 92, and there was wavy inspiration of high key on the left subscapular, and crackle ("dry crepitation") in the middle subclavicular region. In addition to his other medicine a grain of quinine was prescribed, to be taken thrice daily. On the 31st of October his weight was ten stone four pounds, being an increase of six pounds in a fortnight; pulse 88.

November 21st.—There was slight hæmoptysis, and extensive wavy inspiration before and behind. Half a drachm of iodine, a drachm of iodide of potassium, to be dissolved in half an ounce of spirit, for an application to the left subclavicular region.

28th.—Weight, ten stone seven pounds; pulse 76; some pain on the left side of the chest. Chloroform and laudanum, with soap liniment, to be applied; other medicines continued.

During the three first months of 1855, the click extended a little downwards, and there was pain near the left nipple, but these symptoms disappeared. The expectoration, which had varied much in quantity, gradually diminished, and at one period in the month of May was accompanied with a little *calcareous matter tinged with blood*. The treatment during this period was not altered materially, excepting by the addition of free inun-

tion of coco-olein, having a grain of iodine dissolved in each ounce. In June this patient weighed ten stone ten pounds, and his pulse varied from 60 to 70; there was slight bronchophony in the middle subclavicular region on the left side, but no click, and near this point a little delicate wavy inspiration, but the high-keyed wave was no longer to be detected. From the time of the calcareous expectoration the marked fluctuations of condition were no longer observed, he steadily improved in condition, and is now able to walk six miles, and attend with comfort to his ordinary professional avocations.

It may be difficult to determine the relative influence of the different remedies employed in promoting the satisfactory result; but there can be little doubt that, irrespective of general hygienic measures, the cod-liver oil was of essential service, and that its good effect was increased by the contemporaneous administration of quinine. The endermic introduction of coco-olein and iodine has also appeared to me in the present and some other instances to be useful.

In the case next to be described a similar process appears in the first instance to have occurred, followed, however, under less favourable circumstances by a renewal of disease.

A medical practitioner, aged twenty-seven, in the year 1852, had dull percussion over a small portion of the lung, corresponding to the second intercostal space on the left side. In January, 1853, he had a little calcareous expectoration, the size of a split pea, mixed with a little blood. The dulness disappeared, and he remained tolerably well until about the autumn of 1854, when he contracted influenza and cough, which he thinks were rendered severe by bad diet and exposure to the weather in the Caffre war. He was a seven months' child, and could never eat butter or fat. Hair abundant on head and arms, but remarkably deficient on the chest. He had suffered severely from shingles.

On the 14th of April, 1855, he applied to me in consequence of a slight morning cough, accompanied with expectoration of a little thick, yellow mucus, sometimes resembling milk when falling through water. I found dull percussion at the acromial end of the right subclavicular region, and wavy inspiration at the summits of both lungs, but chiefly of the right, where there was also prolonged expiratory murmur. Pulse 88, sitting; 108, standing. I prescribed sarsaparilla with solution of potash and taraxacum, and an appropriate place of recreation in the country. This plan, however, he was prevented from carrying out, but went to the north of England, where, after much professional exertion and responsibility, he had an attack of hæmoptysis.

June 18th.—I found marked increase of dulness, and bronchial respiration, where formerly wavy inspiration was the principal sign. He felt weaker; his eyes were pearly-looking; his general aspect unpromising; the expectoration submitted to the microscope was found to contain much pulmonary tissue.

This case must be regarded as a second attack of phthisis, which in the first instance had pursued (like the case first described) a progress towards recovery. I know of several instances in which, after a repeated recurrence of such conditions, the disease has remained in abeyance, and the patient become able to discharge a full share of the duties of life.

Such cases occur chiefly amongst patients in constitutional conditions rather delicate than unsound, and of active habits, easily fatigued, subject to neuralgia, often hypochondriacal, (and not unfrequently having jugular murmur,) but remarkably varying in efficiency, for the discharge of active duty, according to the extent to which hygienic rules can be observed. Wavy inspiration is a principal local manifestation. This sound, indicating as I believe a free expansion of the neighbouring portion of lung, the result of a condition favourable to the happy termination of the disease, with calcareous metamorphosis of the tubercular deposit.

Bedford-square, May, 1856.

ON A CASE OF POISONING BY SULPHATE OF ZINC; RECOVERY.

By GEORGE D. GIBB, M.D., M.A.,

PHYSICIAN TO THE WEST LONDON DISPENSARY, AND PHYSICIAN-ACCOCHEUR TO THE ST. PANCRAS ROYAL DISPENSARY.

On Sunday, the 18th of April, I was hastily summoned to see Mrs. S—, a married lady, aged twenty-two years, residing in a street in the rear of University College Hospital, who had accidentally taken poison. She had been ill with scarlatina the fortnight previous, and was just convalescent, having sat up the last three days, but she was in a feeble state of health, and could barely crawl across the room.

She was taking a colourless mixture in an eight-ounce bottle, in the dose of a wineglassful, which lay upon the mantelpiece. Close to or alongside of it was another eight-ounce bottle of the same coloured glass, which contained a strong lotion of white vitriol, which the lady's husband was in the habit of using to remove spots from his face. The bottle of lotion had three labels upon it, which were quite conspicuous, thus: "Poison," "For Outward Use," and "Not to be Taken," being respectively placed at the top, middle, and bottom of the flat side of the bottle. At a quarter past twelve o'clock of this day, the nurse gave the lady nearly a wineglassful of the lotion in place of her ordinary mixture; it was entirely swallowed, and the discovery was immediately made by the lady, from the peculiarly disagreeable bitter taste after taking it, that the wrong medicine had been given her. The greatest consternation prevailed, and medical aid was immediately sought for.

In the meantime an emetic of salt-and-water was administered without effect; then some melted butter was given; and, finally, an emetic was procured from a chemist, who did not see the patient, consisting of two grains of tartarized antimony, and ten grains of powdered ipecacuanha;

this was given a quarter of an hour after the poison, but without effect. Vomiting, however, occurred; but not until the finger was applied to the root of the tongue, and only once did this act take place.

On my arrival at one o'clock, all the particulars of the case were related to me, and I found the lady had taken a powerful dose of sulphate of zinc; and from the history of the lotion given by the lady's husband, I was enabled approximately to guess the quantity of the salt in the fluid she had swallowed. It was now three quarters of an hour after taking the poison. She was in a state of great nervous anxiety and depression, sitting in an easy chair. She complained of a burning sensation in the stomach; but not so violent as it had been. Much thirst and dryness of the mouth were present; but slight thirst had, however, existed before taking the poison. She outwardly shivered, and had slight quivering of the lips. Her hands were covered with a cold clammy perspiration; but they felt to herself quite hot, and she seemed anxious to get hold of anything to cool them. The pulse was 104, weak, and small; the pupils were much dilated, and the eyes staring; but this became less marked in the course of a few minutes, on reassuring her as to the safety of her life.

From what had been already unfortunately administered, my only resource was to apply a remedy which would chemically decompose the poison and render it inert; and I at once prescribed a scruple of the carbonate of potash in half a wineglass of water, with some aromatic spirits of ammonia. This was given in my presence, and it had the effect of reducing the pulse in the course of a few minutes eight beats. I ordered it to be repeated every fifteen or twenty minutes, until a couple more doses were taken, thus making three altogether, which would be equivalent to a drachm of the carbonate of potash. I directed her to lay down on the sofa, and to have hot bottles to her feet and sides should the shivering continue.

Quarter past two P.M.—I found her sitting up, and much better. She had had a short sleep on the sofa. The burning heat complained of in the stomach had now descended to the lower part of the bowels, where it was very severe. Thirst was still urgent, and the tongue and mouth were very dry; the pulse was 100, and weak; no vomiting had occurred. I considered it prudent to enjoin quiet, and to order a strong decoction of tea to be used occasionally as a drink.

Half-past eight P.M.—Found her free from any burning sensation or pain. She had an evacuation of the bowels at six P.M., since which time she had been quite relieved from any unpleasant sensation; not now so thirsty; pulse 76, a little stronger, but still weak. The strong tea seemed to refresh her very much indeed. The heat had returned to the entire body; and she had actually partaken of a little roast mutton. She was, therefore, quite convalescent.

On seeing her some days after, she had experienced no unpleasant symptoms whatever—in fact, her strength had increased considerably.

Analysis of the poison.—The bottle contained

four fluid ounces of clear fluid, very slightly turbid on shaking. It had a styptic, slightly metallic taste; was feebly acid; specific gravity 1012.

One fluid ounce, evaporated to dryness, yielded ten grains and a half of a clear white semi-crystalline salt—sulphate of zinc.

The following liquid tests were applied:—

Ammonia threw down a white precipitate, soluble in excess of the alkali.

Sesquicarbonate of ammonia, a copious heavy white precipitate, soluble in a large excess of the precipitant.

Carbonate of potass, a very copious heavy white precipitate, insoluble in excess of the precipitant.

Bicarbonate of potass, a very copious thick, white, heavy, gelatinous precipitate, not soluble in an excess of the test.

Ferrocyanide of potassium, a white milky precipitate.

Sulphuretted hydrogen gas, a white milky precipitate, not well marked.

Chloride of barium, a heavy white precipitate, thus showing the presence of a sulphate.

Phosphate of soda, a white flocculent precipitate, not soluble in excess of the precipitant.

Bright metallic copper was not affected by boiling in the tested fluid.

Milk and albumen produced a very slight flocculent precipitate.

Without dwelling upon the chemical evidence of the nature of the poison, it will suffice to say, the unmistakable presence of sulphate of zinc in the lotion was quite positive. None of the vomited matter could be obtained; it was quickly thrown away by the nurse.

It will be at once apparent, from the quantity of zinc yielded by an ounce of the fluid, that it would be quite insufficient to produce symptoms of poisoning. The following strange facts, however, will sufficiently explain them:—The eight ounces of lotion contained one ounce of sulphate of zinc, bought of a respectable chemist, who cautioned the husband to be very careful of it, and who knew at the same time the purpose for which it was wanted. About this quantity in the lotion, I have been satisfied on the best and clearest evidence. Each fluid ounce, therefore, of the lotion contained one drachm of the salt; upwards of an ounce of the lotion was drank—say nine drachms. The quantity consequently taken was sixty-seven grains of the sulphate of zinc.

It appears that when the lotion was given by mistake to Mrs. S—, the nurse—for what reason has not been explained—took at the same time nearly a similar quantity herself. She moreover rapidly emptied a portion of the lotion into a vessel, partially filled the bottle with water, and scraped off two of the labels. This explains the small quantity of zinc yielded by a fluid ounce as compared with the quantity actually taken by the lady. The nurse, it seems, was the person who went to the chemist's, who gave the emetic for her mistress, and whilst at the chemist's she was seized with great precordial uneasiness, and copious vomiting in his shop. This further accounts for the

agitation and restlessness which she evinced on the occasion of my first and second visits, more especially the first.

With respect to the *treatment*. I had two objects in view: the first, to neutralize the effects of the zinc, whose activity was increased by the salt-water emetic, which, together with the other substances given, arrested its emetic properties. The second was to remove the depression consequent upon the tartar emetic. The first was accomplished by a drachm of carbonate of potass given in divided doses with a mild diffusible stimulant, which completely effected its purpose; the burning heat in the stomach gradually disappeared, and descended into the lower bowel, and there passed off by stool. The effects of the tartar emetic were removed by the exhibition of strong tea, given after the sulphate of zinc was rendered completely inert by becoming converted into the insoluble and harmless carbonate.

Altogether the case is peculiar, not so much from the quantity of zinc swallowed,—which, had things been allowed to take their natural course, would have been got rid of by the vomiting it would have most certainly produced,—but from the behaviour of the nurse, whose conduct throughout must alone be attributed to the fright of the consequences of her imprudence. The delicate health of the lady rendered her more liable to be dangerously affected than if she had been otherwise well.

It is unnecessary to extend the case by reference to authorities, as to the quantity of sulphate of zinc which may destroy life, as that depends so much upon circumstances. The present, however, is sufficiently interesting to place upon record.

Guildford-street, Russell-square, May, 1854.

ON SPARGANOSIS, OR MILK ABSCESS.

By JAMES GILMOUR, M.D., L.R.C.P.

SINCE MM. Trousseau and Contour published a memoir, about fifteen years ago, on the Treatment of Mammary Abscess by Compression, very little has been added by subsequent writers on the abortive, discutient, or repellent method of treating this annoying and perplexing affection.

The management of milk engorgement has been nearly always slighted by the accoucheur as *infra dig.*, and left generally to the care of the nurse, and of course she does her best to assist, by fomentations and cataplasms, the process of suppuration, fancying that when this has been accomplished all trouble and pain will have ended. Alas! this is not always the happy termination.

It is not my intention, in this paper, to give a sketch of the premonitory symptoms which usher in inflammation of the mamma; they are already well described, and as well known; neither do I wish to enter into any useless disquisition with regard to the seat of incipient abscess—viz., whether the congestion, engorgement, or inflammation is located in the proper gland structure, or in the surrounding areolar tissue, fascia, or dermis tex-

ture; or whether they be, each or all, involved in the disease. Neither do I inquire if the excitement be limited to one or more of the superficial glands, or may extend to those deeper seated, because I should be uselessly repeating that which is remarkably well described by Burns and others; the *rationale* of treatment about to be described will effect a cure in whatever part of the organ the seat of the disease may be located.

Our great object in threatened milk abscess is to discuss the tumour, and thus prevent suppuration; and our curative indications are, as well expressed by Abernethy, "to remove or mitigate the cause, and to diminish the excited actions by means operating on the system at large, or on the part immediately affected." (Works, vol. iii. p. 31). It was formerly supposed that the abortive treatment of this affection led eventually to the formation and growth of scirrhus and malignant tumours. *Ætius* tells us, in his remarks on emollient remedies, that "violent discutients, which evacuate without softening, do indeed lessen the swelling, but leave afterwards an incurable evil." Benjamin Bell says that in his day the doctrine was pronounced erroneous; and John Hunter set the dispute at rest when he asserted—"I see no reason why inflammation should not as well subside by resolution as by suppuration" ("On the Blood, p. 421"). I am not aware that any author has revived the idea since Hunter's time.

The resolvent method of treating milk abscess by outward applications is of very ancient origin. *Paulus Ægineta* "squeezed a soft sponge out of tepid oxybate, applied to the breasts, and bound it on in a proper form." (Syd. Soc. Ed., vol. i. p. 504). *Moschion* (who is supposed to have practised at Rome in the days of Nero) advocates the external use of vinegar-and-water; and *Van Swieten*, reasoning in favour of *Moschion's* views, remarks, "For whilst they are quickly applied at the beginning of inflammation, there is great hope of gently dissipating the inflammation" ("Commentaries," vol. xiv. sect. 1336). And it may not be out of place here to state that *Dewees*, in his "Diseases of Females," gives an excellent chapter on the resolvent treatment of milk abscess by externally applying warm vinegar-and-water, but he omits to give either *Moschion* or *Van Swieten* any credit for being the originators of the remedy. He evidently gleaned his information from the above source. The reader, curious in these matters, will find a most interesting account how the ancients treated inflammatory tumours by discutients, in *Friend's* "History of Physic," vol. i. pp. 53—70.

Nearly all modern writers recommend (in the inflamed condition of the mamma) venesection, leeches to the part, fomentations and poultices, suction pipes and tubes of all sorts; but, what is more remarkable, they all exhibit (with other remedies) saline aperients. Now these, in my opinion, are given most judiciously; and in the method of treatment advocated by me here, they ought not to be omitted. The following summary of discutient remedies, from *Samuel Cooper*, may

not be uninteresting: "Topical blood-letting; saline purges; low diet; keeping the inflamed breast from hanging down; gentle friction with a soft sponge wet with warm emollient liquor; having the milk tenderly sucked out at proper intervals; saturnine applications; lotions containing muriate of ammonia."

I beg to reintroduce to the notice of the medical profession the treatment of milk abscess by compression, as advocated by *Trousseau* and *Contour*; the compression being made with very long strips of adhesive plaster. I give their own words: "The compression is to be accomplished by strips of plaster, broad and sufficiently long to go several times round the body. The surgeon, standing by the side of the patient, must first fix one of the extremities of the slip at about the middle of the back; then carry it towards the side of the chest; then pass it over the breast, beginning from the lowest part; then obliquely from below upwards to the outer third of the clavicle on the healthy side; and then obliquely downwards across the back, so as to cover the extremity of the slip already fixed. Following this course several times, he must take care that the portion of the band applied each time covers the two upper thirds of the preceding turn. But it is easy to see that if the bandage is always carried in the same direction, the breast cannot be completely covered; and that, on the other hand, as its several turns go across the clavicle of the healthy side, the movements of the shoulders would tend to displace it, and the lower part of the breast might soon be uncovered. Other strips of plaster are therefore applied, which, proceeding from the anterior and upper part of the abdomen, ascend, crossing the first obliquely; then pass under the axilla, and return, after passing over the posterior part of the chest, to the part where they were first applied, and then are carried again along the same track, covering each time the two upper thirds of the strip last applied. The breast is thus completely covered by the bandage, which is prevented from rising by this last described, which ought to cover only the upper part of the breast." (*Medical Gazette*, 1841, p. 959.)

And what advantages did the authors attribute to this plan? They found that it immediately relieved pain, and diminished the inflammatory engorgement. When applied, after the abscess was opened, it favoured the evacuation of matter, and shortened the suppurative period. I have considerably modified *Trousseau's* method in my practice: I use bands of plaster about fourteen inches long and one inch broad; occasionally they may be required rather longer. The extremities of the strips are attached to the ribs behind, pass over the tumefied mamma, and fastened on or about the sternum; whilst a second set pass from the anterior part of the abdomen to the clavicle, covering the first layer, and *vice versa*. I am satisfied this answers as well as the longer bands, the amount of compression is nearly as great, and the benefits very satisfactory, as will be seen by the recital of only three cases selected from a large number.

CASE 1.—Mrs. H——, aged twenty-seven, confined May 4th, 1854, of her first child; breech presented; still-born. Forty-eight hours afterwards, and when the breasts were tumefied and painful, the adhesive strapping was applied, as above described, *the nipple being entirely covered*. Saline aperients were freely administered. On the second day after compression, the breasts felt full, and attended with considerable pain. She says that the strapping slightly interferes with her breathing, but objects to have it taken off. Next day feels more comfortable; the swelling and tension gradually subsided until the plaster became loose, when it was removed. She was quite well in ten days.

CASE 2.—Mrs. E——, aged twenty-nine, confined June 4th, 1855, of her second child, which was very delicate and strumous. She had witnessed the good effect of the strapping in case 1; she also told me that at her first confinement both the breasts suppurated, and did not heal until after two months of great suffering. Two days after delivery I applied the strapping but *the nipples were not covered*. The lacteal secretion was not entirely suppressed; the baby sucked at regular intervals; and when I considered the breasts sufficiently prepared for a larger flow of milk to enter, I removed the plaster, and she also was well in ten days. However, three weeks afterwards, from exposure to cold, the left mamma became swollen and painful; a hard tumour formed in the superior part of the organ next the clavicle. The compression was again applied for four days, and removed: the swelling had disappeared. Saline purgatives were taken during both periods of compression. Since that time she has had no return of any inflammatory engorgement.

CASE 3.—Mrs. S——, aged twenty-four, delivered on Dec. 2nd, 1855 of a strong, healthy infant, a *primipara*. On the third day afterwards, when the breasts were very full and painful, owing to the baby refusing the nipple, which was small and flattened, the strapping was applied in the usual manner, *leaving the nipples uncovered*. The lacteal secretion was abundant, and ran from the nipples. She says she has had no pain since the compression was commenced. One week afterwards she removed the strapping, owing to its getting loose, and she continued quite well. Aperients were given as usual.

In cases where the plaster was applied too late to prevent suppuration. I was astonished at the relief afforded from pain, tension, and throbbing, though the abscess gradually proceeds to complete maturation. After suppuration has taken place and the abscess having naturally burst before the surgeon had been called in, the greatest benefit will be found from the application of this mode of compression; and amongst the many advantages arising from the strapping, not the least important is the prevention of the pyogenic action from extending through the lax tissue of the organ.

Again when suppuration has gone on unchecked, and after one or more sinuses have formed, marked benefit will be derived from this mode of compres-

sion. In such cases, great attention and perseverance are requisite, because the plaster will have to be repeatedly changed, for it becomes loose as the chronic engorgement and tissue infiltration disappear. I prefer the preliminary trial of this method in sinuous abscess to others, recommended—to laying open the sinuses as first practised by Hey, and still followed by others; or to the injection of the sinuses with iodine as pursued by Mr. Birkett at Guy's Hospital. At the same time that local strapping is employed in these cases, we must resort to constitutional treatment by tonics and alteratives, for the system is generally weakened and debilitated, owing to the continual drain kept up from the sinuses. Hectic may exist; many women are greatly emaciated, so much so that Ramsbotham states that "the body has been known to dwindle almost to a shadow." I have a patient under my care at present, aged twenty-three, with sinuses in one breast, of six weeks' duration, who presents all the appearances of a person far advanced in phthisis. If the compression be employed in these cases without a generous diet, fresh air, and tonic medicines, we shall assuredly fail in causing the sinuses to heal up; but when all are conjoined, the improvement of the patient is gradually manifested.

And now a word or two with regard to our duty as accoucheurs. In every case of delivery, but more especially in a primary one, it is of great importance to the patient that we should make a careful inspection of the breast either before or immediately after delivery. If we find a flat, sunken, or otherwise ill-formed nipple, our attention should be constantly directed to avert the troubles likely to arise from such a condition. We should carefully watch the progress of the lacteal secretion, so that danger does not come upon us unawares, nor find us unprepared. This careful guarding and watchfulness with regard to the first flow of milk has been an object of remark by many of our older writers but especially by Van Swieten, who gives us excellent advice in the fourteenth volume of his "Commentaries." The subject has been sufficiently urged on our attention by modern writers; but knowing, as we do from experience, the sad havoc made on the constitution by suppurating sinuses and cavities, any method of management which has for its object the prevention of milk abscess must be of paramount importance to both patient and surgeon. Benjamin Bell sounded this note of warning nearly one hundred years ago:—

"From the great distress which always attends suppuration in the mamma—indeed the pain and misery of the patient is, in such cases, often so great, that no doubt can remain with unprejudiced practitioners of the propriety of endeavouring, *in every case*, to prevent it."—"Surgery," vol. i. p. 145.)

Trousseau did nothing more than revive an old remedy, long fallen into disuse; and I only wish to re-introduce a modification of Trousseau's method, because I think that the profession has not taken sufficient interest in his memoir. The ear-

liest author that I am aware of who has treated of the method of compression is Heister. After giving a lengthened description of milk abscess and its treatment by the discutient method, we find him making this assertion:—

“The strongest discutient, that I have frequently found to excel others, for these tumours, is the empl. ex sperm. ceti præparat.”—“Surgery,” vol. i. book iv. chap. iv.

Pearson alludes also to it in his “Principles of Surgery,” chap. iii. Of midwifery authorities may be mentioned Smellie and Cooper, who recommend the “empl. de minio vel diapluma.”

Sufficient has been said in this short paper to urge on the profession a more extensive trial of the *methodus, medendi* here advocated. Milk abscess is at all times a troublesome affection; at the time when joy is at its highest note, misery and pain are not lagging far behind; and though I do not go the length of believing, with Hippocrates, “mulieribus quibuscunque ad mammas sanguis colligitur, insaniam significat,” (Opera. venet. 1588, tom. i. lib. v. aphorism 40), yet I have occasionally witnessed much disturbance of the *encephalon*, in conjunction with other symptoms.

Park-road, Liverpool, 1864.

REPORT OF A CASE OF LITHOTOMY.

By T. M. GREENHOW, M.D., F.R.C.S.E.

THE following case of lithotomy only merits notice from the age of the patient, the quickness of his recovery, and the magnitude of the stone, which rendered some operative manœuvres, and great caution, necessary in its extraction.

M. F—, aged seventy-eight, a stout, hale, and otherwise healthy man, had suffered for several years from symptoms of stone in the bladder, when, about two years ago, he first requested my advice. On sounding him, a stone of considerable size was immediately discovered, which seemed very hard, and produced a clear ringing sound when struck with the instrument. During the interval between that time and the operation he was not again sounded, but had frequent attacks of severe suffering, generally accompanied with hæmorrhoidal tumours. Rest, with mild aperients, and a mixture composed of magnesia, gum arabic, and tincture of hyoscyamus, gave him relief, and it was long before he could make up his mind to have the calculus removed by operation; but the last fit was a severe one, and he seemed to think it better to run all hazards, in which his age was an important element, than to suffer repetitions of equal severity. It is remarkable that the urine never exhibited any morbid appearance: even when his sufferings were greatest, and he was obliged to pass it several times in an hour, it remained free from deposits, either acids or alkaline, and it was perfectly clear. From this circumstance, and the relief obtained by the use of magnesia, I was led to believe that the calculus probably consisted of oxalate of lime. This conjecture is confirmed by its appearance, though it has not been hitherto proved by chemical analysis.

On the 27th of April the operation was performed, the patient being placed very completely under the influence of chloroform, which effectually prevented all consciousness during the operation.

The staff which I employ has a curve of bold sweep, and the groove is placed diagonally, that is, midway between the back and the side of the instrument. This enables the operator easily to accompany the point of the knife (a common scalpel) along the groove of the staff, within the neck of the bladder, and to measure with accuracy the extent of the incision of the prostate, made in drawing back the knife from the deeper part of the wound. This part of the operation was rapidly performed, and the stone was quickly and firmly grasped by the forceps, introduced over the finger as a director. The stoutness of the patient led me to expect a deep perinæum. I therefore made the external wound of ample extent, which enabled me to pass my finger (a somewhat long one) within the neck of the bladder and to touch the stone. It was not necessary, therefore, to use a blunt gorget as a director to the forceps, according to the manner practised by the late excellent and celebrated lithotomist, Mr. Martineau, and as I thought it probable that in this case I might have found it expedient.

It was at this stage that the difficulty of the operation was encountered. The stone was large and rough on the surface, and, from the great age of the patient, the prostate was firm and unyielding. It was evident that without great and unwarrantable violence, the stone could not be extracted, unless greater space could be obtained by additional incisions of the prostate. These were effected in two directions—one, some distance above the original incision on the left side, and a second divided to some extent the right lobe. Careful efforts were then gradually and firmly made, by which, in a few minutes, a stone of large size was extracted without laceration of the neck of the bladder. During the first week the bowels required the use of gentle aperients and injections, and since, an occasional dose of castor oil has been exhibited. No untoward symptoms have interrupted recovery. About the fifth day the urine began to flow through the urethra, and in another week it ceased altogether to pass by the wound. The wound has healed with unusual rapidity, and on the twenty-fifth day scarcely a trace of it remained uncicatized. I did not allow the patient to get out of bed till the twenty-fourth day, believing that mischief sometimes arises from too early assuming the upright position, and using much muscular exertion.

The weight of the stone is 3 oz. 2½ dr. (apothecaries' weight), and its measurements as follows: Length 2½ in.; breadth 2 in.; thickness 1½ in.; circumference at the thickest part, as drawn from the bladder, 5½ in.

Newcastle-upon-Tyne, June, 1864.

ON THE PATHOLOGY AND TREATMENT OF UTERINE DEVIATIONS.

By E. J. TILT, M.D.

SENIOR PHYSICIAN TO THE FARRINGTON GENERAL DISPENSARY AND LYING-IN-CHARTY.

BEFORE entering upon the immediate subject of this inquiry, I seize the opportunity for saying a few words upon the discussion respecting uterine pathology which has lately been debated in the pages of *THE LANCET*. With respect to the ovarian theory, it was put forward by me to explain a certain number of cases not to be traced to inflammation of the neck of the womb, or to any other pathological condition; and as my views on this subject have been adopted by some of the best pathologists at home and abroad, I am induced to believe them correct. No one, however, knows so well as Dr. Bennet how entirely I concur with his belief that the generality of the distressing cases witnessed in practice are caused by various inflammatory affections of the womb. With regard to treatment, I should be sorry to be deprived of *potassa fusa cum calce*, for by its judicious use it is often possible to cure, speedily, safely, and radically, ulcerations of the neck of the womb which have lasted for years, but I am aware that it is a dangerous implement in the hands of the inexperienced. Four cases, at least, I have seen in which its injudicious use led to the obliteration of the os uteri, and tedious treatment was required to dilate the canal of the neck of the womb, so that menstruation might be made possible; and as Dr. Bennet's discretion in using this valuable adjunct has, to a certain extent, been questioned, I feel it due to him to state that, when he left the Western General Dispensary, many of his patients came to me at the Paddington Free Dispensary, to which I was then senior physician, and though in some *potassa fusa* had been applied several times, I saw no mutilation of the neck of the womb, neither do I remember noticing any ill effects from the use of the same caustic in Dr. Bennet's private patients, whom he has asked me to attend when he was out of town.

The following papers were sent for publication about the same time as Dr. Bennet's. I mention the circumstance because some of my views will be found to approximate with those he has so ably put forth in his sketch of the displacement theory. This support will give additional weight to my statements respecting the disastrous effects of certain methods of treatment, which some seek to popularize for the cure of infirmities susceptible of yielding to milder means.

There is a great diversity of opinion respecting uterine deviations, and this is not to be wondered at when we remember the position occupied by the womb, and the fact of its being a moveable organ amongst other moveable organs; and as we cannot examine our patients until the position of the womb has been altered by long-continued suffering, we are to a certain extent ignorant of what, in health, would have been the position of the womb, and are therefore deprived of a positive

standard by which to gauge the amount of displacement. When the practitioner was only guided by the sense of touch, the affections of the neck of the womb were involved in great obscurity, and as it is impossible to bring the sense of vision to bear on the diagnosis of uterine displacements, their pathology is full of contested points, and their treatment is equally unsettled. While some leave these affections to Nature, others, with the laudable desire of giving relief to what, after all, is but an infirmity, have imagined modes of treatment so dangerous that they have been the death of many women in the prime of life. Besides the obscurity of all that concerns these affections, their frequency renders them well worthy of consideration, for long before they had attracted great attention, uterine displacements were so frequent that 3000 pessaries were delivered at the *Hôtel Dieu* of Paris in a single year (1811). I do not pretend to treat the subject so fully as it would require, and shall only touch on such points of the pathology of uterine displacements as may throw light upon their treatment.

It would be time lost to treat of uterine displacements, without having first established what is the right position of the womb, its mode of connexion with the pelvic organs, and the forces which can act upon it.

The womb is poised upon the vagina, the walls of which, in the healthy subject, are in close apposition, so that the womb is really supported by a muscular column, which is firmly implanted in the perinæum. It has been correctly observed, that the perineal floor forms the apex of a large inverted cone, of which the diaphragm is the basis, its sides being formed by the pelvis and by the elastic abdominal walls. Thus enclosed within the abdomen, the womb, standing on its apex, has an axis which is the continuation of that of the vagina. The womb is slightly anteverted, so that its axis is oblique from above downwards, and in an antero-posterior direction; it has a certain limited range of mobility in the pelvis, so that its axis varies in different women, and in the same woman, according as the bladder and intestines are severally empty or full, but I think that Cruvelhier is wrong to assert that the uterus has no proper axis. It is as much as to say that there is no average weight, size and form for the various parts of our frame. How is the womb maintained in its average position?

1. By the vaginal column.

2. By the ligaments of the womb.

If the round ligament exists in the only animal that has the privilege of standing erect, it must to a certain extent maintain the womb in its normal position; but to suppose that it is ever stretched sufficiently to keep the womb in its normal situation, and that anteversion of the womb depends upon these round ligaments being too short, and retroversions on their being too long, is an assertion too *square* to be in harmony with the real facts of the case. The pretended ligaments of the womb have not in reality the energetic action implied by their name. We are repeatedly told that in cases

of retroversion, if we leave the patients on their backs for a time, the uterine ligaments recover their former tension, and are enabled to retain the womb in its right position; and if this may be asserted with some show of reason of the round ligament, which contains a few muscular fibres, how can it be said of the broad ligament?

If the womb is partly kept in its place by its ligaments, the same result is brought about even more effectually by the pressure of the surrounding organs. Thus, if the normal axis of womb is inclined from above downwards, and in an antero-posterior direction, it is caused by the greater capacity of the recto-uterine peritoneal pouch than of the vesico-uterine pouch, so that the bunch of intestinal folds hanging above and before the sacro-vertebral angle presses on the posterior surface of the body of the womb, and retains it in its right position. It may be said that it sometimes occurs that unmarried women, after some unusual muscular effort, feel the ligaments give way; but the correct way of accounting for this sensation is, that the womb has been suddenly forced under the intestinal mass.

Thus poised on the vaginal column, the healthy womb maintains its position in virtue of the arrangement of forces to which it is exposed. All impulse resulting from the contraction of the diaphragm, the base of the large inverted cone rebounds from the elastic perinæum, and the womb, by its pyriform shape, presents its surfaces so appropriately that it is steadied and supported by the various impulses it receives. The situation of the womb once determined, we are now able to appreciate its malpositions. If, without departing from its normal axis, the womb descends into the vagina, it is said to be in a state of *prolapsus* or *procidentia*. This malposition, and inversion of the womb were described by medical writers of the latter part of the last century as the only uterine displacements. Prolapsus is a very frequent infirmity, but it will only occupy our attention inasmuch as its study may enable us to understand the more complicated uterine deviations.

The body of the womb may be bent in its neck so as to appear curved like a retort, thus constituting deviations from the womb's own normal axis. These deviations are called inflections: if the body of the womb is bent towards the rectum the womb is in retroflexion, and in ante flexion if the body of the womb is bent towards the bladder. The axis of the womb considered in itself remaining normal, the womb may be displaced *in toto*, and incline to become horizontal, the patient being in the erect posture. Prolapsus of the womb is very common; so is retroversion, which may be considered as the normal state of the womb in the first four months of pregnancy; but anteversion is rare. Uterine inflections were almost unknown until a few years ago, when Velpeau pointed out their frequency; and Dr. Boulard has lately asserted that the shape of the womb is erroneously described by anatomists—that the bending of the body on the womb in ante flexion is the normal shape of the womb in the infant and in the young unmarried woman. The assertion rests on numerous

post-mortem examinations, and on the laws of uterine development, which show us in the womb the union of two parts having each a separate development and a different pathology. The opinion is somewhat confirmed by the erroneous assertion of those who have represented anteversion of the womb as frequent. This assertion has been confirmed by clinical observation, and by the direction given to a wax bougie passed into the womb. This new view is adopted by Caseaux and others in France, and by Dr. Bennet and myself.

In my next paper I shall treat of the causes of Uterine Displacements.

York-street, Portman-square.

ON A CASE OF VACCINELLA.

By ROBERT W. ELLIS, M.R.C.S.E., L.A.O., Bristol.

HORATIO D—, aged ten weeks, was vaccinated January 16th, 1856, in two places on the left arm.

Jan. 25th.—Two large well-formed vesicles, with the surrounding areolæ larger and more raised than usual, and covered with a number of minute accumulated vesicles, were noted. Twelve points were charged with lymph from the pocks. To take three grains of grey powder every other night.

29th.—Was requested to see the child to-day for an eruption which was first observed on the 27th. The child is very cross and restless, and has a slight cough. There are two brown scabs on the arm where the vaccination was performed, and no unusual appearance around them. The skin of the face, trunk, arms, and legs is covered in some places with oval disks, of the size of and resembling a vaccine vesicle; it is slightly raised above the surrounding skin, but with a flat surface and marked thus: a red outer margin; an inner circle of a white pellucid appearance and a little broader than the outer circle, and a central oval area; red and not depressed. After reaching this stage, they do not proceed further, but gradually disappear. At other parts several of these have coalesced, forming a large area, irregular in outline, very much resembling the large white patches sometimes seen in urticaria, but without the surrounding redness. The surface has a slight blush diffused over it, with a white translucency intermixed, and small accumulated vesicles scattered thickly over it. Ordered a saline mixture, with a little ipecacuanha wine for cough.

31st.—Eruption out very vivid last night, but it has receded this morning.

Feb. 2nd.—Child much better; patches have almost disappeared, leaving the cuticle in some places shrivelled up, in others no trace of the disease, except a slight discoloration, and in one place on the chest a dry brown scab. A patch near the navel is still covered with vesicles.

April 9th.—A few scars here and there over the trunk.

REPORT OF A CASE OF WANT OF OSSEOUS DEVELOPMENT OF THE CRANIUM AT BIRTH, &c.

By JOHN S. BEALE, Esq., M.R.C.S.E., Harrow-Road.

MRS. H.—, aged twenty-three, mother of one healthy child, was delivered on the 30th of May, of a full-sized female child, exhibiting the following deviations from nature:—It had spina bifida, occupying the last two lumbar vertebræ, and part of the sacral region, about the size of the palm of the hand; the spinous processes and laminae of the vertebræ were deficient, likewise the upper part of the os sacrum; the forehead presented a bulging appearance, owing to the non-development of the frontal bone; all the anterior part, down to superciliary ridges, was wanting, and merely the lateral and temporal sides were present; the gap occasioned by the junction of the two halves increased as the finger traced it upwards, whence only the anterior inferior angle (about one inch) of the parietal bone on each side could be felt; the parietal bones made a slight attempt at approximation at their posterior superior angles, from which points the occipital bone was only developed at the sides, the same as the frontal. Owing to this state of affairs, nearly two-thirds of the brain is deprived of its bony covering. The child sucks well, but occasionally turns its eyes inwards. Nothing unusual occurred during the pregnancy of the mother, beyond a neighbour informing her, whilst out walking, that she thought her house was on fire, which report did not attract her notice particularly at the time. The child is now doing well, and thriving.

June, 1854.

ON THE ADMINISTRATION OF NUX VOMICA.

By J. HAMERTON GREENWOOD, Esq., L.S.A., Manchester.

To the Editor of THE LANCET.

SIR,—The trial of Palmer, and the interest excited in all minds regarding the effects of strychnine, reminding me of a case which occurred some years ago when holding a public appointment, I beg to forward it to you. It was written out at the time by a colleague, who had charge of the case. He is since dead, or it would have appeared long ago in your columns. For the correctness of symptoms, post-mortem appearances, &c., I can vouch, having seen the case throughout, and made the *sectio cadaveris* myself. Hoping it will be of sufficient importance to trouble you with,

I remain, Sir, your obedient servant,

J. HAMERTON GREENWOOD.

M. J. G.—, aged thirty, a florid, healthy-looking woman, came under treatment June 17th, 185—, complaining of pain and tenderness in the region of the spine, with inability to move her lower extremities with facility. These symptoms were probably hysterical, and the whole appearance of the case, her very countenance indicated it,—

her capriciousness of temper and appetite, together with a deep religious feeling, all tended to confirm such a diagnosis. She had, however, never suffered distinct hysterical paroxysms, although, as usual, the menstrual function was irregular, but not arrested. The case, indeed, simulated spinal disease, so the poor creature's back became for four months the seat of severe counter-irritation—croton oil liniment, potassa fusa, the actual cautery, &c. She was able to walk about, and went to the closet regularly without assistance. So far had she improved, when on the 7th of October the following was prescribed:—Nux vomica powder, three grains; saccharized carbonate of iron, ten grains; made into powders, to be taken three times a day.

With the exception of some slight increase of appetite, the remedy produced no obvious effect till a fortnight had elapsed, at the end of which time slight diarrhoea set in, with colicky pains. A dose of chalk mixture was ordered, and the purging continuing, the nux vomica was stopped on the 23d. She then began to have a little bilious vomiting, but these symptoms subsided under the use of chalk, opium, effervescing saline, and mustard plaster, S.C. On the 28th, she began to complain of tinnitus aurium, drowsiness, increased sensibility to light and sound, formication, numbness of the head and upper extremities; she expressed some fears of losing her speech, which had become impaired. Ordered, oxide of silver, two grains; saline mixture, one ounce, in a state of effervescence, every three hours: mustard plaster, S.C.

On the 31st she became delirious; excessive thirst and strange sensations about the head. The next morning, Nov. 1st, she was able to articulate a few words only, which were her last. Tetanic symptoms now became manifest, which affected the muscles of the face and upper extremities, the fingers and arms being drawn forcibly by clonic muscular contractions. In the course of the day decided trismus set in; during the slight intervals of relaxation, deglutition was very imperfectly performed; the pupil was somewhat dilated, sluggish, but never insensible to light. It was evident the poor creature's intellect was unimpaired; she was conscious of all around her, made various efforts to speak, swallow, protrude her tongue, but in vain. Brandy, wine, ammonia, and beef-tea were given as long as she could swallow, and then nutrient enemata, with occasional turpentine ones, were administered. The pulse was weak, small, and frequent; the skin throughout very hot, and a peculiar erythematous eruption about the neck, arms, and shoulders. She turned her head constantly to the left side, and her eyes were fixed in the same direction. Catheterism was performed twice.

During the next day, Nov. 2nd, the spasms increased. The left angle of the mouth was drawn upwards, like a sardonic smile; the lower extremities were unaffected throughout, nor had the patient any precursory twitchings, which are usually observed in paraplegia treated with strychnine. In fact, the whole force of the poison seemed concen-

trated in the system, manifesting itself, firstly by gastric and intestinal irritation, and then suddenly affected the cerebro-spinal system. On the 3rd of November the sphincters became relaxed, motions passing involuntarily, and catheterism had to be again performed. This continued up to the time of her death. She remained in this state up to the 4th; the respiration then began to be affected, and in the evening she was seized with a strong tetanic convulsion, which continued several minutes. Respiration ceased; the face became livid; brows contracted; lips drawn wide apart, showing the gums and clenched teeth; hissing of the saliva through them. The face was horribly distorted; the heart still beat feebly. During the night she had four similar paroxysms—respiration laborious, skin very hot. She sank towards morning, and at five A.M. death closed the scene. Death appeared to be due partly to the want of nourishment and the exhausted powers of the heart, and partly to the impeded action of the respiratory muscles, though she did not actually die during one of these fits: it was a continuation of apnoea with asthenia.

Autopsy, thirty hours after death.—Features placid; venous turgescence, on separating the calvarium; brain firm and paler than natural—no softening of it or spinal cord, but membranes of the latter congested; heart contracted and empty; lungs healthy; recent slight inflammatory appearance of ileum, near ileo-cæcal valve. Excepting this, no appearance of disease. Uterus healthy; ovaries pale, but healthy. No indication of organic disease in any part of the body; spine (bones) not diseased.

From the details of the foregoing case, we may come to the conclusions—

1st—That nux vomica is a drug acting more powerfully in certain constitutions.

2nd—That it is cumulative in its action.

3rd—That it affects the encephalon as well as the medulla spinalis.

Three grains three times a day are perhaps above the ordinary average, yet Royle says nux vomica may be given in doses of five to fifteen grains. This patient only took altogether seven scruples in sixteen days, which, according to Dr. Taylor, is only equal to three-quarters of a grain of the alkaloid strychnine. Idiosyncrasy has doubtless much influence, or how are we to compare this case with others, in which one grain and a half, and even three grains, of strychnine, have been given for some time without injury. Pereira says that some individuals are more susceptible than others of its action; that as much as fifty grains have been given at once, yet tetanic symptoms have been produced by a dose of the alkaloid equal to only sixteen grains of the powder. Had this woman really suffered from paraplegia, she would doubtless have had twitchings of the lower extremities, and have borne a much larger dose of the medicine. Guy seems to allude to the cumulative effects of strychnia. In this case the specific action of the poison on the nervous system was not manifested for five days after the medicine had been

discontinued, and then its effects were almost suddenly produced as the effort of Nature to throw it off by the bowels was interfered with. This case would seem to caution us in administering nux vomica in any other than paralytic cases, and particularly as our authorities seem to differ so widely as to the dose and effects of this powerful remedy. Bayle employed nux vomica in hysteria and epilepsy; but, as Pereira observes, its use is certainly contraindicated in spasmodic or convulsive diseases, and indeed, in one of these cases, it caused paralysis and death. Christison says nux vomica may be given in small doses, frequently repeated, so as to imitate exactly the phenomena of tetanus from natural causes. Mr. Baynham states that he has often given one scruple three times a day, without any sensible effect. He adds, the drug must materially differ in strength, either in relation to the age of its growth, or the time it has been kept.

June, 1855.

STRICTURE OF THE URETHRA; PERINEAL SECTION; CURE.

BY ZACHARIAH LAURENCE, Esq. F.R.C.S.

EDMOND W—, a fine healthy-looking young man, aged twenty-seven, first came under my care on October 6th, 1855. He had had gonorrhoea twice, ten years back. Between these two attacks he observed that he could not pass his urine freely; then for two or three years he felt better, although still far from well. "But the symptoms of stricture crept on so imperceptibly that he did not notice them." About three years ago, however, they assumed such severity, that he sought the advice of a surgeon, whose assistant attempted daily to introduce a silver instrument of the size of No. 6, with no other effect than inducing a good deal of bleeding and giving the patient much pain. For the last three years he had allowed the disease to take its own course. When he first came to me, the following was the state of things: Stream of urine the size of No. 2 instruments; inability to retain his urine longer than for two hours together, otherwise excessive pain; obliged to exert great force and straining on micturition; occasional incontinence; urine itself natural in appearance and acidity, not albuminous; general health good. A full-sized silver instrument indicated the seat of stricture by being arrested six inches and a half from the orifice of the urethra.

From this date up to Nov. 15th, the patient attended at my house with the greatest regularity two or three times a week, and I attempted, with instruments of all sizes, all forms, and of all materials, with the patient in all attitudes, to introduce an instrument through the stricture, but in vain. Yet I had seen cases (judging from the stream of urine) apparently much worse, that had not given me half the trouble. This I soon learned was due to *false passages* in front of the stricture. I need not detail the variety of trials I gave this patient before determining on an operation. I once got an instrument into the bladder under chloroform, and twice subsequently without. Mr. Quain then, at

my request, kindly undertook the case for a short time; but neither of us making any headway, I at last resolved to cut him.

Operation, Jan. 25th, 1856, Half-past Two P.M.—Chloroform was administered by my friend Dr. Hillier. Mr. Quain assisted me at the operation. After a little difficulty I succeeded in introducing a Syme's staff (the grooved portion corresponding to No. 1 of the silver catheter scale). The patient was held in the position required for lithotomy. I made an incision in the middle line of the perinæum; then, after finding the groove in the staff by the nail of the left index finger, inserted the point of the knife into this, and carrying it forward till it reached the notch at the commencement of the groove, thus divided the stricture freely. No. 6 silver catheter was tied in the bladder. Two small vessels required ligaturing, and the wound was firmly plugged with lint. Three hours after the operation, I found florid blood dropping fast from the wound. The previous plugs were withdrawn, the wound re-plugged, and ice applied. About a pint of clear, limpid, perfectly bloodless urine was drawn off through the catheter by pressing the hand over the hypogastrium. In about another two hours the bleeding recurred with redoubled violence. I then withdrew all plugs from the wound, and found arterial blood bursting out *saltatim* from two arteries. These were, after some difficulty, secured, the wound firmly re-plugged, and ice again applied. From this time forward not a trace of blood oozed from the wound. On the 27th, one P.M., the catheter was withdrawn from the bladder; but curiously enough, from the time of operation up to closure of the wound, not a drop of urine escaped through this latter. From this time silver instruments (Nos. 8 and 9) were passed from time to time with ease into the bladder; but he remained in a precarious state of health for some time to a degree sufficient to cause me great anxiety for his ultimate safety. However, by February 20th, he was sufficiently recovered to go down to Devonshire. There he placed himself under the able care of Dr. Haines of Totness, who, on one occasion, passed No. 9 with great ease. After it, however, he had a severe rigor, and was for some time anything but well. Under these circumstances, Dr. Haines very judiciously refrained from passing any instruments. He has now returned from the country "better than ever he felt in his life." At present (about ten weeks after the operation) he has lost all his symptoms of stricture, and passes his urine in a good stream three or four times a day. In the perinæum is a linear firm cicatrix.

Remarks.—These shall be extremely brief. The interesting point in the *pathology* of the case is the insuperable difficulties false passages may offer to the passage of instruments. Those in the *operation* are:—1. The violent hæmorrhage that ensued after it. 2. The interesting fact that from the very commencement not a drop of urine came through the wound; this I attribute to the extremely firm plugging employed. 3. The rapid subsequent convalescence of the patient.

Devonshire-street, Portland-place, June, 1856.

ON A CASE OF LACERATION OF THE PERINÆUM WITH COMPLETE RUPTURE OF THE RECTO-VAGINAL SEPTUM AND SPHINCTER ANI, AND CURE WITHOUT AN OPERATION.

By ARTHUR TAYLOR, M.R.C.S., L.S.A., &c., Kingsclere.

As the following case is highly interesting, in a practical point of view, and tends to disprove the generally received notion that complete rupture of the perinæum and sphincter ani are incurable without an operation (which, by the bye, is not invariably successful), I forward the following outline to you for publication:—

On the 20th of December, 1850, I was summoned to attend in her confinement Mrs T——, the wife of an agricultural labourer. On making the usual examination, *per vaginam*, I discovered that the head did not present that conical form which is commonly the case when the presentation is natural, and a little further manipulation demonstrated the fact that the occiput was opposed to the sacrum. This, it will be remembered is one of the most common causes of laceration; the pelvis was, however, exceedingly capacious, and I therefore had little doubt but that the labour with common care, would be speedily brought to a favorable termination. After the lapse of about half an hour from the commencement of my visit, the head began to press upon the perinæum, from which time, up to the occurrence of the accident, I was very careful to give the necessary support which the peculiarities of the case required. My patient was now lying in the usual position, on her left side, her knees well drawn up, and her feet firmly placed against the bed-post, awaiting the next pain, my hand at the same time resting against her perinæum. At this juncture, and in the most sudden and unexpected manner, while pressing her feet forcibly against the bed-post, she withdrew herself most completely out of my reach, and before I could again give such assistance as was necessary, the child was completely expelled. The act was almost instantaneous. I, of course, conceived what was the true state of affairs, and an examination too sadly verified my fears. At that time such cases were generally deemed incurable, and a poor creature so afflicted was considered only as an object of pity, and disgust; it was, therefore, with much pain that I reflected on the seeming hopelessness of her condition. Having approximated the knees by a bandage, and informed my patient of what had occurred, I returned home without doing anything more. At my next visit, the following day, on introducing the forefinger of one hand into the rectum, and that of the other into the vagina, it was with some difficulty that I could reach the upper part of the lacerated septum, having done which, and placed the points of the two fingers together, I then withdrew them through the whole of the torn parts without any opposition. It will thus be seen that not only were the sphincter and perinæum completely ruptured, but the recto-vaginal septum also. In order to give the laceration a chance of healing, I determined to lock up the bowels, and with this intention administered

repeated doses of the compound chalk mixture, with tincture of opium. On my third visit, it was gratifying to find that a small band of perinæum, just behind the commissure, had united, and that the septum had healed slightly from above downwards.

At my fourth visit, still greater improvement had taken place, and, in addition, the sphincter was beginning to heal. When I next saw her, on the fifth day, my visits having been diurnal, the case had in every respect greatly improved. On the sixth day, the septum was so nearly healed that not more than half an inch remained unclosed. At the end of one week the edges of the sphincter and perinæum had become quite united, the latter being a little shorter than before the accident, while the septum was so nearly closed, that on passing a finger into the rectum, and another into the vagina, there was some difficulty in making the nails of such fingers touch through the wound.

Up to this period the bowels had been kept free from any evacuation; and as there was now some febrile symptoms setting in, a dose of castor oil was administered, and continued daily for another week. In a fortnight more my patient had perfectly recovered, and she has since borne children without any untoward event.

In the above treatment of the case it will be seen that little was attempted to be done; yet it clearly shows that Nature, slightly assisted by art, is sometimes able to effect a cure where it is least expected.

June, 1856.

REPORT OF CASES OF GUN-SHOT WOUNDS OF THE HEAD AND CHEST.

By T. K. BIRNIE, Esq.,

ASSISTANT-SURGEON, 2ND BATTALION 1ST FOOT (ROYALS).

FROM the list of our wounded during the siege of Sebastopol I have selected the two following cases, which appeared to me interesting, not merely on account of the serious nature of the injuries, but from the satisfactory result of the treatment adopted.

CASE 1.—Gun-shot Fracture of the Cranium.—Private John Sullivan, aged twenty, was wounded early on the morning of August 23rd, in the advanced trench, by a fragment of a shell, which struck him on the upper and back part of the head, rather towards the left side. On examination of the lacerated wound, which was about two inches long, a depressed fracture of the cranium was found to exist.

When Dr. Gordon (in charge of the 2nd Division) arrived at our hospital, he determined to open up the wound, as he suspected it to be a case of punctured fracture. On making an incision at right angles to the wound, securing two or three branches of the occipital artery, and reflecting the flaps, the fracture was found not only to be depressed, but of the "stellated" kind. The trephine was now employed; a circle of bone taken away, and, with the aid of simple dressing forceps, five or six pieces of the vitreous table lying loose on

the dura mater were also removed, and the depressed portion raised by the elevator. The dura mater was uninjured. The flaps were then brought together by suture, and iced water applied continuously to the wound and shaved scalp. A saline laxative was given, and the head raised. The same evening tartar emetic was given, in doses of one-eighth of a grain, every ten or fifteen minutes, so as to have an antiphlogistic effect, and keep up slight nausea.

Aug. 24th.—Complained early of intense pain in the forehead, when venesection was employed to the extent of twenty-four ounces. This relieved the patient; he was easy during the day; bowels free. Antimonial mixture, and cold applications to the head continued.

25th.—Recurrence of intense pain in the head, accompanied by quick, hard pulse, and flushed countenance. Bled again to about twenty ounces, when the violence of the pain abated; no other change in the treatment.

26th.—Pulse rising again, and pain in the head complained of; bowels not well opened yesterday. Two drops of croton oil ordered, also a purgative enema; tartar emetic, one-eighth of a grain, every ten minutes, and continuous cold to the head as before; sutures removed this morning.

27th.—Bowels only once opened by enema yesterday; some pain in the head again complained of to-day. Other two drops of croton oil were ordered, which acted freely after two hours, the headache then completely abating; rest of treatment unchanged.

28th.—Slight pain in the head this morning, relieved by purgative enema; tartar emetic now given every half hour. Got extras, (arrowroot) in addition to spoon diet, for the first time to-day.

From this period he progressed favourably without further active treatment, the antimony also being discontinued a few days afterwards, and nothing further employed but the antiphlogistic regimen, and the continuous application of cold to the wound, along with occasional laxatives. The movements of the dura mater, synchronous with the action of the heart, were observed for about three weeks after the operation, but gradually became less distinct. He was transferred to the Castle Hospital, Balaklava, on Sept. 27th, after thirty-five days' treatment at our camp. He remained at Balaklava until sent to England by the *Thames* steam-transport, where he arrived towards the end of January, 1856, enjoying pretty good general health, and the wound all but healed, the trifling discharge which was present when he went to Balaklava having entirely ceased.

CASE 2.—Gun-shot penetrating Wound of the Thorax.—Private James Mulveahy, aged twenty-six, was carried up to hospital from the trenches early on the morning of Sept. 1st, wounded through the right lung by a musket-ball. The ball entered the chest near the sternum, fracturing the sternal end of the right clavicle, and, traversing the right lung, made its exit between the fifth and sixth ribs, about one inch and a half external to the nipple, and rather below it. He breathed

short and with difficulty; the nostrils were dilated, and the countenance pale and expressive of great anxiety. He was able to speak a word or two at intervals, but with a great effort.

After being got into bed, he had a slight attack of hæmoptysis; blood trickled from the lower wound, but in less quantity from the upper, around which, however, there was a considerable extent of emphysema. He was bled to the extent of twenty-eight ounces, which appeared to relieve the breathing considerably, and cloths dipped in iced water were applied to the wounds and over the whole chest; one ounce of sulphate of magnesia was also given. Towards the evening, (about eighteen hours after admission,) the face became flushed, the pulse rose, and the breathing became evidently more laboured. Recourse was again had to the lancet, and twenty ounces of blood were taken. The patient was now easier again, the pulse softer and slower, and the dyspnoea considerably less. One-eighth of a grain of tartar emetic was now given every ten minutes during the night.

September 2nd.—Last night he coughed up some mucus mixed with blood; is rather better to-day; cold applications to the chest still continued, and tartar emetic given in one-eighth grain doses. Complained in the evening of severe pain on each inspiration in the lower lobe of the right lung, much below the site of lower wound, and towards the back. Eighteen leeches were ordered to be placed on the part complained of, and a purgative enema administered.

3rd.—Bowels well opened last night; skin cooler. Complained still of pain in the lower part of the lung posteriorly on inspiration. Other twelve leeches ordered to be applied; one-eighth grain of tartar emetic to be continued every quarter of an hour. Mucous expectoration, still mixed with blood, but to no great extent; pain on inspiration much relieved by leeches.

4th.—Mucous expectoration to-day has no trace of blood. Says he feels much easier. Another enema given, as the bowels were not opened yesterday.

5th.—Worse this morning. Face again flushed, skin hot, and pulse hard and bounding; respiration also laboured. He was now bled again to the extent of twenty ounces in the erect posture till syncope was nearly reached; was again relieved by the depletion, but being now very weak, the antimony was discontinued, the cold applications to the chest being persevered in.

From this period he gradually improved, and was allowed a little port wine on September 11th, and a gill every day subsequently until he was transferred to the Castle Hospital, Balaklava, on September 27th, after twenty-seven days' treatment in camp. His other extras were arrowroot, oatmeal, and latterly a little soup and bread. No other medicine was given except half a grain of muriate of morphia latterly at night to procure sleep, and occasional laxatives. I saw him at Balaklava about the middle of last November, when he told me he had hæmoptysis after reaching the Castle Hospi-

tal for a fortnight, but, as it was to no great extent, he concealed it, lest his allowance of wine should be stopped. He also described the expectoration he had at that time as purulent. Since then, however, he stated that he had improved daily, and was now able to walk about. He was sent to England in the steam transport *Thames*, where he arrived about the end of January, 1856.

This case is peculiarly interesting from the febrile exacerbations which occurred threatening a dangerous attack of hæmoptysis, or inflammation of the lung, and the fact of their being kept down by the bleeding, which also uniformly relieved the breathing, although sixty-eight ounces of blood may appear a large quantity to take in so short a period, the necessity for removing so much of the vital fluid seemed imperative, and the result was favourable.

Another case in our regiment of gun-shot wound of the right lung, accompanied with considerable hæmoptysis and emphysema was successfully treated in a similar manner; and although the ball is still lodged in the lung, the man has till recently been doing duty as a soldier in the Crimea, and feels no bad effects from its presence.

ON A CASE OF HERMAPHRODITISM.

By WILLIAM LONEY, Esq., Macclesfield.

JANE W—, aged twenty-eight years, was a short time ago admitted into the lunatic ward of the Macclesfield Workhouse. Her unwillingness to be washed was so great, that the suspicions of the nurse were excited. She told me she was sure Jane W— was *not a woman*. I examined her, and found that she had a penis two inches long, and the same in circumference, placed on the pubis, just above and between the external labia; it has a well-defined prepuce, which can be moved at pleasure, causing a slight erection. The opening into the vagina, which is just below, is so small as to admit the little finger with difficulty; a ligamentous band may be felt at about three inches distance from its mouth. The urethra cannot be seen, but I passed a catheter into the bladder through the vagina. There is no opening in the penis. The hair of her head is curly and short, like a man's; her limbs very muscular and hairy; her voice exceedingly rough and masculine. The mammae are entirely absent, and she has more hair than usual about the pubis. She has never menstruated. Her taste is very depraved, as she will eat old poultices with great delight. She is strong and healthy. Her amatory propensities have sometimes been annoying to the young women in the same ward with her.

May, 1856.

THE PHYSIOLOGICAL TEST FOR STRYCHNIA.

By MARSHALL HALL, M.D., F.R.S. &c.

SOME years ago several cases of poisoning by arsenic occurred in rapid succession. The career of crime was stayed by its being made publicly known that no poison was so readily or certainly detectable as arsenic.

Arsenic is scarcely more detectible by chemical re-agents than strychnia has proved to be by the physiological test which I recently published in the pages of THE LANCET.

Recently the 5000th part of a grain has been made manifest to a multitude of beholders at once, and so manifest that no visual object can be more conspicuous—an event very different from the fact of a mere change of colour.

The effect is produced, too, by the simplest means, such as our medical brethren in the country always have at hand.

The common frog, properly prepared, is not less susceptible of the convulsive effects of galvanism than it is of the peculiar effects of strychnia. Of frogs the smaller ones are more susceptible than the larger, and these should be used recently taken from the pond—from the mud if possible.

The skin should be well dried by means of blotting paper. The strychnia to be tested should be dissolved in as small a quantity of water as possible, and dropped on the back of the frog, so that it may become absorbed.

Probably a still less quantity of this extraordinary agent may be made manifest if inserted under the skin, or injected into the stomach.

In a short time the frog becomes affected with tetanoid or epileptoid spasm or convulsion on the application of the slightest cause of excitation. It is *strychnoscopic*.

This susceptible creature may, I am persuaded, be made available for the detection of several other poisons, with each of which the kind and form of the phenomena vary.

Strychnia in the vegetable kingdom answers to the *diastaltic spinal system* in the animal kingdom, on the centre of which its energies are impressed—a system the extent of which in the animal economy—next to that of the blood itself—is not even now, after the lapse of nearly a quarter of a century, by any means known or appreciated by the profession!

In this system there is a kind of “*solidarité*,” by which every part is affectible by the excitation of every other:—in reality, the spinal centre is what the great sympathetic was formerly supposed to be!—but there is a *speciality* too, by means of which one organ may be affected more or less than the rest, thus leading to the difference of form of the phenomena produced, to which I have adverted. The motor branch of the fifth pair is most affected in traumatic tetanus, the laryngeals in strychnism.

I am preparing an essay on the important subject of strychnia as a remedy, a poison, and a physiological agent.

Princess-street, Hanover-square, June, 1854.

Practical Contributions

ON THE

DISEASES OF FEMALES

BY HENRY BENNET, M.D.,

PHYSICIAN-ACCOCHEUR TO THE ROYAL FREE HOSPITAL.

No. XI.

A REVIEW OF THE PRESENT STATE OF UTERINE PATHOLOGY.

Summary.—My aim in writing the Review of the opinions and theories now more or less current respecting uterine pathology—concluded in the last communication—has been twofold. Firstly, I have wished to show that the frequent existence of inflammatory lesions of the uterine neck, ulcerative and other, which I and those who preceded me in the surgical investigation of uterine diseases have announced, is a truth. That it really is a truth, an undeniable truth, I have proved, not by my own experience, or by that of the pathologists who agree with me, but by appealing to the observation and writings of practitioners who hold totally opposite opinions as to the pathological importance, and even as to the cause and nature of these lesions. Henceforth this fact *must* be accepted as one established on an incontrovertible basis, and to question it will merely expose those who do so to the smile of the more enlightened members of the profession. Secondly, I have wished to show that the various theories which have been brought forward with a view to explain uterine ailment and uterine lesions, without referring to idiopathic uterine inflammation as, generally speaking, their direct cause, are untenable on scientific and practical grounds. This I have proved by demonstrating that these theories are founded on the endeavour to give a general application to facts which in reality only admit of a very partial application.

Thus, cases may and do occur in which inflammatory lesions of the neck of the uterus, including ulceration, exist without presenting any pathological importance. In some women, the organic sensibility of the womb, and its sympathetic connexion with the rest of the economy, are so slight that severe uterine disease, inflammatory or other, may exist for months or years, as in other organs, without producing either much local discomfort or much general disturbance; but these are exceptional cases. To conclude from them that inflammatory lesions in this region are, as a general rule, of no pathological importance, is to state what is, on the one hand, contrary to experience, and, on the other, contrary to the laws of general pathology, to which I have so often and so confidently appealed in the course of this Review. What would be thought of a pathologist who gravely asserted that ulcerations of the eye, the nose, the mouth, the throat, the larynx, the stomach, the rectum, the anus, the vulva, &c., were of no pathological importance!—and if they are, why should the uterus, the sensitive centre of so many affinities

and sympathetic reactions, be the solitary exception to a general pathological law?

Thus, leucorrhœa exists as a mucous membrane and follicularly persecretion, the result of physiological or pathological congestion, and may, in some rare cases, exercise a morbid reaction on health, and require treatment. But to consider this hypersecretion as the essential disease that generally produces the symptoms of uterine ailment, local and constitutional, and to look upon the recognised inflammatory lesions and reactions of uterine mucous membrane, which are so generally found in cases of uterine ailment, as mere symptoms of this essential disease, is to ignore entirely the laws of general pathology. It is, indeed, to jumble together in inextricable confusion the cause, nature, symptoms, and sequelæ of uterine disease.

Thus, ovaritis exists both in the acute, sub-acute and chronic forms, and when it does exist, reacts of course on the uterine functions, and gives rise to a regular sequence of symptoms; but to attribute to sub-acute ovaritis the cases in which tenderness, pain, and fulness of the ovarian region are found, and to look upon the coexisting uterine lesions and symptoms as merely sympathetic conditions, is simply a pathological error, the result of physiological prepossessions. It is giving to the ovary pathologically the same pre-eminence in the female genital system that it really does exercise physiologically—a pre-eminence to which it has no real claim.

Thus primary and secondary syphilis are both observed in the neck of the womb, but their presence is, in reality, so rare, that even in the wards of a syphilitic hospital they are seldom observed, and they have very little to do with the uterine disease observed in town practice.

Thus, displacements of the uterus are constantly met with, but, in extreme cases, they are, in reality, of secondary importance. They often exist in the healthy without being recognised or complained of; and they often remain after the removal of disease without distress or inconvenience being experienced. Whilst in those who suffer from the symptoms of uterine ailment, they generally coexist with decided inflammatory lesions; their presence may be generally explained by these lesions; and they are generally removed by degrees, as the inflammatory lesions are cured and disappear.

If I have succeeded in establishing the truth of these two propositions, the correctness of the doctrines which I have so long and so strenuously defended, and which I briefly exposed in my second communication, must be acknowledged; and the inflammation theory, as it has been termed, must be accepted as the key to the greater part by far of the field of uterine pathology. My readers, however, are now in possession of the principal data, anatomical, physiological, and therapeutical, on which my own convictions are founded, and it remains for them to examine Nature herself, to use their own powers of observation and judgment, and thus to arrive at personal conclusions and opinions on the subject. Most sincerely do I trust that the arguments which I have adduced may

lead many who have hitherto been supine to throw off the trammels of preconceived opinions, to think and observe for themselves, and thus to assist in establishing on a firm basis a branch of medicine of such vital importance to the whole community. At present it is in a transition state, many conflicting opinions and doctrines, as we have seen, dividing the medical mind. Such a state of things, however, is not destined to last. The sound common sense of the practical members, of the medical profession will before very long discern the truth, winnow the corn from the chaff, and definitely settle these disputed questions, as it has settled many others. This, the future verdict of the profession, may give the palm to the opinions which I defend, or it may possibly give it to some of those which I criticise or condemn. In the latter case, I should only be able to excuse my error by claiming to have conscientiously brought to the study of the subject all the powers of observation and reasoning which I possess. But if, on the contrary, as I hope and believe, the views I defend are eventually triumphant, my great reward will be the knowledge that I shall have contributed by my labours, under difficulties of no ordinary kind, to the advancement of true science, and to the welfare of the human family.

Before concluding, there is one fact which I am anxious to again bring forcibly before my readers; and that is, the double medico-chirurgical character of uterine pathology. If the views which I have developed are correct, confirmed uterine disease generally passes out of the domain of medicine into that of surgery, and requires surgical means of investigation and surgical means of treatment. The practitioner, therefore, who would successfully grapple with the difficulties of uterine pathology must, on the one hand, be thoroughly imbued with medical knowledge; and on the other, he must be well acquainted with the doctrines of surgery, and accustomed to its manipulations and operations. The discussion to which the publication of this essay has already given rise, appears to me to illustrate and substantiate this fact, and also to show what are some of the difficulties against which the really rational therapeutics of uterine disease have to contend. For my part, I can scarcely understand how a practitioner conversant with the doctrines and operations of surgery could speak of the application of a small issue to the neck of the uterus, enlarged, indurated, and hypertrophied by years of chronic disease, as "a mutilation." Nor can I understand how such a practitioner could write with absolute horror and dread of the actual cautery, or "white iron," which is an acknowledged, accepted surgical agent, still used and prized by many surgeons, and which would be more employed were it not that it alarms patients. I have often seen it used, and used it myself in my early surgical days, for various diseases, and have always found it a safe and manageable agent. I have, very lately, like Dr. Boulton, whose letter appeared in *THE LANCET* of the 5th instant, all but succeeded in healing by its means a most suspicious ulceration of the cervix uteri,

which had resisted the potassa fusa repeatedly applied, and that with the concurrence and approbation of Dr. Birt Davies, physician to the Birmingham Hospital, whose patient the lady was. Indeed, this fear of the actual cautery, and of the more powerful caustics, appears to me quite puerile in a surgical point of view, if these agents really are required to cure disease. What is surgery, but the application of the knife, of caustics, of the actual cautery, or of whatever powerful agent may be required to remove or to destroy disease, or to *modify vitality*? Why, therefore, in plain common sense, should the application of these agents to the occasional treatment of uterine disease, be spoken of with "unsurgical horror and alarm," if they really are occasionally required? and why should they not be required in exceptional cases of uterine disease, as well as in exceptional cases of disease of the bowel, vulva, meatus urinarius, &c.?

Here again we may appeal to the laws of general pathology. Once it is admitted that the neck of the uterus is liable to inflammation, ulceration, thickening, hypertrophy, and induration, that it may become the seat of unhealthy, suspicious disease, ulcerative, and other; and that these diseased conditions may exist uncured an indefinite number of years,—every well-informed surgeon will allow that there *must* be cases which will not give way to the nitrate of silver, to astringents, leeches, &c. And if so, what is to be done with them? Are we to leave the patients to their fate, and confess ourselves impotent to cure, whilst we have more powerful surgical agents in our hands, agents which can cure these very morbid states? To the surgically educated practitioner there is but one solution of this question: as long as there is a fair chance of cure he will keep to the milder means of treatment; it is his imperative duty to do so. As soon, however, as he has ascertained that these means are insufficient, he will at once, prudently and cautiously, but without fear or trepidation, resort to the more powerful means of treatment at his command.

APPENDIX.

During the publication of this Review, I have received a valuable communication from an Indian practitioner, a thorough stranger to me, which so fully bears out the truth of an assertion elsewhere made, that I think I cannot do better than here append it. I allude to the statement contained in the preface to the second edition of my treatise on Uterine Inflammation, to the effect that "the descriptions of uterine disease which I have given are the expression of facts truly observed and faithfully reproduced, and will hold good alike in *all climes*, in all lands, and in all grades of social life." I may add that Dr. Stewart's testimony, as to the frequent existence of inflammatory and ulcerative disease of the neck of the uterus amongst the native women of India, is thoroughly corroborated by the experience of Dr. Scott, formerly Physician

to the Hospital for Native Women at Madras, and now practising at Ootacamund. Dr. Scott has repeatedly informed me that he has found these diseased conditions to be quite as frequent amongst the native women at Madras as I have done at Paris and London. I merely transcribe Dr. Stewart's communication, which is as follows:—

"Warley Barracks, Brantwood, Essex, 19th March, 1856.

"DEAR SIR,—It may perhaps interest you and the readers of THE LANCET to know that your views and observations regarding the frequency and importance of ulceration of the cervix and os uteri are amply borne out in India, as everywhere else. In proof of this, I take the liberty of sending you a somewhat curious memorandum, (see page 183), drawn up for me by one of my late esteemed associates in the Calcutta Medical School, Baboo Madoosudun Goopta, of the appearances observed in these parts on the post-mortem examination of fifty *native Indian* females, whose death occurred in hospital from other casual diseases.

"A long and extensive experience amongst native families in Calcutta, from the highest to the lowest classes, fully satisfied me that the particular affections which you have so ably described and brought to the notice of the profession are of *immense frequency*, and that the plan of treatment which you so ably advocate is the only right one.

"I am, Sir, yours truly,

"D. S. STEWART, M. D.

"Surgeon Hon. E. I. Co.'s Depot, Warley."

SKETCHES OF THE SURGERY OF THE WAR, FROM THE MILITARY HOSPITAL, PORTSMOUTH. (JANUARY, 1855, TO MAY, 1856.)

By THOMAS H. BURGESS, M.D., Medical Staff.

No. I.

The invalids from the Crimea, admitted into the Military Hospital at Portsmouth, during the eventful years 1855–56, presented forms and modifications of disease of a unique character, and deserving attention.

Besides gun-shot wounds, three diseases especially attracted our attention—1st, the Crimean dysentery, complicated with phthisis, (miscalled diarrhoea); 2nd, paralysis; 3rd, frost-bite.

1. The men admitted with dysentery were very frequently suffering from phthisis,* and, with few exceptions, in a deplorable state. Their wretched aspect, broken constitutions, emaciated frames, decrepid and aged appearance, were so characteristic, that it was only necessary to see one or two cases in order to learn the disease at the first glance of the invalid as he landed in the dockyard from the transport.

Boys of eighteen bore the haggard, time-worn aspect of men of seventy or eighty, with sunken, glazed eyes, prominent jaws, and an expression of

* All the bodies of invalids I opened in this hospital, dead of Crimean dysentery, with one or two exceptions, had tubercles, more or less advanced, in their lungs.—T. B.

utter prostration, painful to look at. Their bodies were crawling with vermin, and the skin encrusted with filth, and even human excrement. More than one of these broken-down warriors died *in transitu* from the dockyard to the Military Hospital, a distance of about one mile; others died on the threshold of the hospital, before they could be removed from stretchers in which they were conveyed to their beds; and many lingered on between life and death, supported by spiced wine and brandy, and soothed by morphia, for a day or two, without being able to utter a word, and the most careful observer could scarcely tell when the breath left them. The deplorable aspect of these poor objects stood out in strong relief with the stern, martial, and *healthy*-looking appearance of the great majority of those wounded by shot or shell, all of whom, with one or two exceptions, recovered and did well; and to the honour of the surgery in the field, I can safely say that the specimens of the operations performed, under every difficulty, in the Crimea, received into the Garrison Hospital at Portsmouth, were beyond reproach.

The usual remedies for dysentery, as, for example, chalk mixture, catechu, kino, lead, opium, &c., were employed for a day or two after the arrival of the first batches of invalids, without producing any beneficial effect whatever. I then had recourse, in the wards under my charge, to a solution of the muriate of morphia, with nitric ether, and the aromatic spirit of ammonia, giving at least one grain of morphia in each dose, administered twice or three times a day, as occasion required.

This remedy (for the type of chronic dysentery admitted here from the Crimea) had the most decided salutary effect, and purging, that could not, to use the expression of several of the medical officers, be stopped by other agents, was immediately diminished, and in cases not too far gone speedily arrested. I have seen many cases brought into this hospital, moribund, almost pulseless, and in whom the breathing scarcely could be ascertained, leave the building convalescent in the course of two months from their admission.

Some of those—almost helpless cases—on their being landed from the transport in the dockyard, were immediately supplied with stimulants, and upon several occasions, Major-General Breton, Commandant of the Garrison, conveyed them to the lips of the apparently dying invalids. These men had no other remedies administered to them, than those mentioned above—namely, morphia, aromatic spirit of ammonia, and nitric ether. Men that were purged every quarter of an hour, by their own statement, were in a few hours greatly relieved; and many that were pronounced hopeless, and purged from ten to twenty times in the twenty-four hours, were discharged convalescent, within the period above mentioned.

But all was not sunshine here, and the miseries of the war were often painfully illustrated, and in some instances in the most touching manner.

CASE 1.—*Dysentery and Small-pox.*—W. Chatton, Private, 4th Dragoon Guards, aged twenty-two

years, arrived from the Crimea, in the transport *Candia*, on the 8th of January, 1855, and was admitted into the Garrison Hospital same day, with chronic dysentery, passing slime and blood, and greatly emaciated. He was treated with the usual remedies—chalk mixture, acetate of lead, and opium, with no decided benefit, being one day better and the next worse, up to the end of March. The last entry I find in the register, by my predecessor, is this: "Is frightfully emaciated, and passes his stools involuntarily." On the 10th of April he was transferred to my charge, and the following is my continuation of the case:

April 10th.—Is very low and prostrated by constant purging of watery stools and blood, day and night. On Sir Frederick Smith and party visiting the wards to-day, the sheet was ordered to be put over his head, as he was supposed to be dead. I suspended the former treatment, and adopted the following: Solution of muriate of morphia, one drachm; spirit of nitric ether, half a drachm; aromatic spirit of ammonia, one drachm; peppermint water, one ounce. Make a draught; to be taken three times a day. Two gills of brandy, to be taken in warm water, and one gill of wine spiced with nutmeg, cloves, &c., were given every twenty-four hours.

15th.—Is better to-day; not so much purged; skin cooler and more moist. Pulse 100. Lives upon stimulants. To continue the same treatment.

20th.—Is much better; derives great benefit from the draughts, for which he is always craving; less purged; stools less bloody; sleeps quietly; appetite improving.

25th.—Progressing very favourably; sat up in bed supported by pillows.

May 1st.—Is very cheerful, and says he feels himself daily gaining strength; was only purged four or five times in twenty-four hours, instead of every half hour, as on first admission. The draught to be continued, and, in addition, a mixture of infusion of quassia, and tincture of the sesquichloride of iron, as a tonic, was ordered twice a day.

5th.—Still the same favourable appearance; no relapse, or untoward symptom.

10th.—Is convalescent; sits up at the fire in the ward.

15th.—No unfavourable change since last entry; is steadily gaining strength.

20th.—Has been out on the gallery walking.

25th.—Was purged only twice in twenty-four hours, and is getting quite fat. Returned as in a fit condition to proceed to Chatham; but having no clothes, which circumstance was represented to the proper authorities a fortnight previously, he was obliged to wait.

He is perfectly recovered.

June 1st.—The same.

3rd.—On my return from Chatham, where I had been for forty-eight hours on the public service, I found him ill in bed with an eruption, supposed to be nettle-rash; he was removed to a separate ward as a precaution, when a most malignant form

of confluent variola declared itself. He was then removed to the small-pox ward, where he died on the 9th of June, with the worst form of that disease I have ever seen.

The various changes that take place in the dysenteric patients, with the changes in the weather, are worthy of notice. When the atmosphere is dry and clear, the purging rapidly diminishes, and the spirits of the broken-down invalids revive, and they progress very favourably; but when there is watery vapour floating in the atmosphere, and especially when the air is surcharged with it, every untoward symptom that can occur is sure to present itself, and reduce the invalid to his original prostrate condition; in fact the sanitary condition of the dysenteric invalid from the Crimea varies with the mercury, and as it rises or falls, so does his health.

I have seen invalids from the Crimea received into this hospital purged every quarter of an hour during wet and squally weather, and, as a natural consequence, reduced to a low ebb. When the atmosphere cleared up, and the air became more rarified, the same invalids immediately rallied, and showed signs of recovering health scarcely to be expected. Even the medical officers in charge of the sick and wounded from the East were not exempt; for after a short sojourn in the hospital, especially during the summer months, when the foul and fetid smells arising from the stagnant moats around the building covered with slime rose above the surface, and impregnated the air in the evening, they were, on many occasions, attacked with diarrhoea.

I was called up one night in May, 1855, shortly after midnight, to visit 2nd class Staff-surgeon Dr. Leitch, only a short time arrived from India, and found him suffering from a sharp attack of what is called in this country "English cholera." He was treated with morphia, and with success.

CASE 2.—Dysentery.—Private Joseph Roberts, 1st Battalion Rifle Brigade, twenty-five years of age, was admitted into the Garrison Hospital on the 19th of January, 1856, suffering from chronic dysentery. Had been attacked by fever and dysentery in the Crimea last autumn. On admission into this hospital he was very low and weak, emaciated and exhausted; purged several times during the night.

22nd.—Purging less frequent; is slightly better.

25th.—General health improving. Half a drachm of morphia and the same quantity of nitric ether were administered four times in twenty-four hours. He was on milk diet, with arrow-root and wine.

28th.—Improving gradually; tongue clean, but red; pulse 90; skin cool and moist.

31st.—Purging increased suddenly with the advent of cold raw weather, and diminished as the atmospheric temperature increased. This is an invariable characteristic of the type of dysentery observed in this hospital in the Crimean invalids.

Feb. 5th.—Reports himself better; purging diminished; appetite pretty good.

7th.—Has had a relapse with the return of the damp rainy weather; purging much increased;

pulse quick and small; skin hot; tongue intensely red.

10th.—Continues very low and weak, and does not rally under the influence of brandy and the diffusible stimulants.

13th.—Purged six times a day; evacuations, slimy mucus and blood.

16th.—Eyes sunken; jaws prominent; lips exsanguine and encrusted with sordes; pulse rapid and thready.

18th.—Insensible; sunk gradually, and died at eleven o'clock A.M.

I made a post-mortem examination of his body twenty-seven hours after death. Body shrunken and emaciated to a degree; skin pale; features sharp, pinched, and shrivelled, presenting the appearance of decrepitude and senility, instead of what is usually observed in young men of twenty-five years of age. Patches of ecchymosis appeared along the dorsum. Thorax: Lungs emphysematous, and lower lobe of left lung studded with semi-transparent grey granulations; these were found in the pulmonary cells. Yellow miliary tubercles were also interspersed in the tissue of the right lung. Heart presented a most abnormal appearance; it was hypertrophied all over its walls, and in a semi-cartilaginous state; the carnae columnæ and chordæ tendinæ were indurated and hypertrophied so as to fill up the cavity of the ventricle; the tricuspid and mitral valves were in the same morbid condition, but in a less degree. Abdomen: Liver pale, but otherwise healthy; stomach distended with flatus, and contained about four ounces of green bilious fluid; the mucous surface of this organ presented no morbid appearance. The duodenum, jejunum, and ileum contained a yellow, pultaceous, semi-fluid substance, and the latter portion of the intestine was hypertrophied, congested, and ulcerated. Yellow granulations of tubercle were traceable in the tissue of this intestine. From the ileo-cæcal valve to the rectum the gut was congested, hypertrophied, and ulcerated. The large intestines were so contracted and thickened throughout, that the little finger could not enter them. The morbid appearances of the lower intestines observed in this case varied in no respect from those noticed in all the cases of Crimean dysentery I examined in this hospital.

The three following cases have been furnished to me by Mr. Wright, of the Medical Staff, who treated them:—

CASE 3.—Private W. Bunn, aged forty-two, of the 11th Hussars, suffering from dysentery, was admitted into the Military Hospital at Portsmouth on October 1st, 1855.

His state on admission seemed very hopeless. He was pale, emaciated, and exceedingly weak; was purged not less than sixteen times in the twenty-four hours, and he also complained of great pain in the abdomen below the umbilicus. The morphia treatment, so successfully employed by Dr. Burgess in similar cases, was adopted, and with the following result:—

Oct. 5th.—Pain in abdomen less, and is only

purged about six or eight times in the twenty-four hours.

10th.—Pain in abdomen gone; bowels less frequently open; appetite good, and is gaining strength daily.

20th.—Purged now only twice in the twenty-four hours, and he is able to be out of bed for a short time.

25th.—Complains of slight straining on going to stool; otherwise he progresses favourably.

30th.—Straining less; purged still twice only in the twenty-four hours.

Nov. 4th.—Straining gone.

9th.—Bowels quite regular; no return of straining; he is now strong enough to go out into the open air.

18th.—Convalescent from dysentery.

19th.—Discharged to Chichester.

CASE 4.—Private John M'Guire, aged thirty. 68th Regiment, was admitted into this hospital on September 3rd, 1855, suffered severely from chronic dysentery.

On his admission he was greatly emaciated and prostrated; his eyes were sunken, his jaws most prominent, and his limbs were mere skin and bone. The following remedies were administered: catechu, kino, acetate of lead, sulphuric acid, &c. These remedies were employed for seven days, without the slightest benefit. I now tried the morphia treatment, and the following was the result:—

Sept. 14th.—He is purged two or three times in the twenty-four hours; appetite excellent, sleeps well, and is much stronger.

20th.—Is still purged two or three times daily, but he is gradually gaining strength.

26th.—Progresses most favourably; purged only once in the day.

30th.—Convalescent.

Oct. 5th.—Discharged to Chatham.

CASE 5.—Private Hetman Wenzel, aged nineteen, 13th Regiment, was admitted into the Military Hospital, Portsea, on the 17th of October, 1855, suffering from a severe attack of dysentery. He had been seized with dysentery in August, at Balaklava, and was sent into the Camp Hospital, where he remained for some time, and was then sent to Scutari, but not improving there, he was invalided home. On his admission into this hospital, he was in a very weak state indeed, extremely emaciated, and was purged not less than seven or eight times during the twenty-four hours. His stools were thin, mucous, and mixed with blood; tongue furred; pulse quick and small; skin hot and dry; thirst urgent; and appetite far from good. To take solution of morphia, forty drops twice a day.

Oct. 20th.—Greatly improved; purging less; scarcely any straining; and he expresses himself to be much better than he has been for weeks. Continue morphia.

25th.—Still progressing in a favourable manner; he is now not purged more than three or four times during the day, and his motions are almost natural; his appetite has greatly improved; skin

moist; tongue clean; and thirst abated. Still continue the morphia.

31st.—Is daily gaining strength, and the purging is diminishing. Continue morphia.

Nov. 4th.—Purged only twice during the twenty-four hours, and he is now able to be out of bed, and walk about in the verandah. Discontinue morphia, and take tincture of muriate of iron, twelve drops, three times a day.

9th.—Convalescent.

12th.—Discharged to Chichester.

The following case was treated by Mr. H. Edwards, of the medical staff:—

CASE 6.—David Richardson, aged seventeen, 68th Regiment, was admitted into the Military Hospital, Portsea, on the 30th of June, 1855, suffering from an attack of dysentery. He was pale, weak, and emaciated, and complained greatly of straining on going to stool. His motions were coloured with blood.

July 1st.—His motions are very scanty, like the washings of raw meat, flakes of what appear to be mucous membrane floating in them; upon the slightest effort to turn or move he is compelled to go to stool; his pulse is small and frequent; skin moist; appetite rather good.

5th.—He has been greatly relieved by the treatment employed, (morphia and stimulants;) the straining is less, and he is less frequently purged.

10th.—His motions are more natural in colour, and vary greatly in their consistence; general health improving.

15th.—Progresses favourably.

20th.—Bowels natural in colour and consistence, and purging almost ceased.

25th.—Convalescent.

August 1st.—Discharged on furlough.

The treatment of the above case was entirely morphia, given in doses of about half a drachm, three times daily; with a mild and nourishing diet, and a moderate allowance of stimulants.

Amongst the deaths from Crimean dysentery which came under my observation here, that of Lieutenant-Colonel Louth, of the 38th Regiment, was the most sad. He arrived in the transport ship *Hansa*, towards the end of July, 1855. He was wounded in the Crimea, but his wounds were nearly well, when he was attacked by the scourge of the war, dysentery. On his arrival in the dockyard he was moribund, and could not speak.

When I saw him I was convinced that he could not live an hour, but his friends naturally wished him to be brought on shore to more comfortable quarters. When he was brought on deck in a litter, his jaw fell and his eyes turned upwards. The bystanders thought he was dead. With the aid of warm brandy he revived a little, and was then conveyed in a stretcher to lodgings in St. George's-square. It was a dreary, drizzling evening, and when he was carried into the sitting-room he was too far gone to be placed in bed. He was placed on the floor, in the stretcher in which he was conveyed from the ship, and he died in about half an hour afterwards, perfectly tranquil.

Insanity.—Besides the corporeal diseases resulting from the war, mental affliction was not wanting. Several cases of distressing mania were admitted into this hospital from the Crimea, and some of the most violent character. In one case of raving madness, I was obliged to administer chloroform, and keep the lunatic under its influence for several hours, to tranquillize him. His roaring was heard throughout the hospital, on the ramparts and in the neighbouring terrace. The strait-waistcoat was employed without effect, but the chloroform effectually calmed him, and he ultimately left the hospital in good bodily health, quiet, and amenable.

CASE 7.—Private James Micklethwaite, 34th Regiment, admitted July 18th, suffering from mania. No history of his case could be obtained, and the patient's reasoning faculties were obscured from the moment of his admission into this hospital until he expired. While he was in hospital he was in the habit, at night, of getting out of bed, and hiding himself under the beds of other patients. Skin cool, pulse slow, bowels regular, and he was very quiet in his habits.

I made a post-mortem examination of his body, twenty-one hours after death.—External appearances: Body greatly emaciated; calvarium much thicker than natural.—Internal appearances: Dura mater strongly adherent to the skull, pale, and traversed in all directions by slightly congested veins. On detaching the dura mater from the brain, a small patch about the size of a shilling, of soft, pulpy, medullary substance, was observed on the left hemisphere, over the lateral ventricle on that side. This morbid condition presented all the characters of "ramollissement." The substance of the brain when cut into, especially the medullary portion, was of a dull-white colour, and there was no trace of vascular injection perceptible. The pia mater appeared natural, but the sulci, between the convolutions, were traversed by congested veins, similar to those on the dura mater. There was no trace of pus in the substance of the brain. The ventricles contained less than the usual quantity of fluid, and looked pale. The choroid plexus, the corpora striata, and the optic thalami, presented a normal appearance. The general consistence of the brain, irrespective of the small portion where softening existed, was firm. The cerebellum presented no morbid appearance whatever.

Military Hospital, Portsmouth, 1864.

CLINICAL SURGERY IN THE UNIVERSITY OF EDINBURGH. USE OF THE ACTUAL CAUTERY IN ARTICULAR DISEASE—EXCISION OF THE ELBOW-JOINT.

By JAMES SYME, Esq.,

PROFESSOR OF CLINICAL SURGERY IN THE UNIVERSITY OF EDINBURGH.

NEARLY all the chronic diseases of joints were formerly comprehended under the general denomination of White Swelling; and when this dreaded

title had been applied, the amputating instruments were regarded as a nearly necessary consequence. But in recent times great improvements have been introduced into the treatment of articular disease, by discrimination of the textures primarily affected, together with their characteristic symptoms at an early period, when alone the means of remedy can be productive of any advantage. In order to promote your acquaintance with this most important department of practice, I have selected and pointed out for especial attention examples of the different derangements to which joints are liable from diseased action, existing in their most simple and pure form, in order that by becoming familiar with them, you may be able to study with advantage not only these conditions, but their various combinations. There is only one such morbid state remaining, and to this I now beg to call your attention.

The disease which we have at present to consider is most generally known as Ulceration of Cartilage. To this title objections have been made, and I am not prepared to maintain that it is free from exposure to them. But in using it I merely wish you to understand a particular state of articular disease, occurring in certain circumstances, characterized by peculiar symptoms, and remediable by only one means of treatment. It is generally met with in persons liable to rheumatism, which, after shifting about through various parts of the body, is said to fix itself in the joint affected. On other occasions, it appears suddenly, without any such previous warning, and is most apt to do so as a sequel of some feverish disturbance, especially that which so frequently occurs in women who are nursing. It is hardly ever met with in the ball-and-socket joints, such as those of the shoulder and hip, being nearly confined to the hinge-joint articulations, as those of the elbow, wrist, knee, and ankle, which are affected in degrees of frequency that may be arranged in the same order as just mentioned.

The symptoms are, first, severe, deep-seated pain, aggravated by pressure and motion, generally increased during the night, and usually suffering exacerbation before rainy weather; second, uneasy sensations, in general referred to the joint next to the one concerned, but frequently extending throughout the limb; third, diminution or complete loss of muscular power; fourth, œdematous swelling; fifth, variation of temperature; sixth, numbness or want of proper sensation; seventh, more or less swelling, of a firm, unyielding kind, confined to the seat of the articulation. This condition may continue for weeks or months with little alteration, but sooner or later terminates either in recovery, with more or less stiffness of the joint, or in suppuration, when caries is the most frequent result. When the joint is examined at an early period, the cartilages are found eroded, with a little bloody fluid in the cavity, and hence the disease has received its appellation. In order to relieve the patient's distress, to protect the joint from undergoing a change inconsistent with its free mobility, and to prevent the risk of suppuration, which must be attended with either ankylosis or caries, it is obviously a very important object in surgical

practice to obtain an effectual control over this morbid derangement. But the means adequate upon other occasions are here altogether unavailing. The constitutional remedies by which alone synovial disease can be successfully combated are of no avail, and the prevention of motion, which has so beneficially superseded the employment of counter-irritation in other diseases of the joints, here affords at best nothing better than a very imperfect palliation. Fomentations, poultices, leeches, blisters, and even issues opened by the knife or caustic, cannot claim any higher degree of efficiency, so that a practitioner who possesses no other means of relief must regard such cases as the opprobria of his art, and distressing subjects of professional care. But fortunately there is a remedy within the reach of every one not precluded by prejudice from employing it, which may be regarded with perfect confidence as an effectual counter agent of the disease in question. This is the actual cautery.

Nearly thirty years ago, the perusal of the work on "Arthrokakologie," by the late Professor Rust, of Berlin, induced me to employ the actual cautery for the counter-irritation. At that time, so far as I know, it had never been used for this purpose in Great Britain, and much horror was expressed by many of my professional brethren at what seemed to them so shocking a proposal. But the surprising and no less satisfactory results derived from its use soon forced the red-hot iron, notwithstanding all its terrors, upon the attention of practitioners, and as frequently happens under such circumstances, led to mischief through its indiscriminate employment. Many a time I have seen joints suffering from nothing but gelatinous degeneration, burnt longways and crossways so as to present the pattern or a chequered plaid, and even in cases of subacute phlegmonous inflammation I have seen this excellent remedy employed so ignorantly and remorselessly, as to open the joint, and establish a pretext for amputation. But a proper field for beneficially employing the actual cautery is that disease of the joints which I have just endeavoured particularly to describe, and for this it may be considered a remedy no less certain than speedy. If time permitted, I could give you a long list of remarkable cases, in which patients, exhausted by protracted suffering, disappointed by the employment of useless treatment, and regarded as hopeless by their medical attendants, were suddenly transferred by it from misery to comfort, and restored to permanent good health. One of the first I recollect came with great difficulty to Edinburgh, suffering from protracted disease of the elbow-joint, in the course of which he had employed all the ordinary means, including a "gross of leeches," without obtaining relief, so that for several weeks, as he assured me, he had not been conscious of ever sleeping. Indeed he could not assume the horizontal posture, and passed all his time seated in a chair. I applied the cautery. Next night he slept soundly; the swelling and pain soon subsided, and recovery was quickly completed, with merely some stiffness and want of smoothness in the motion of the joint. The patient was a fish-

curer at Berwick-upon-Tweed, and for long afterwards annually sent me a salmon in grateful testimony of the relief which he had experienced.

The patient now before you Mrs. —, aged twenty-seven, tells us that five weeks ago, when her baby was seven months old, she was exposed to cold by hanging out clothes to dry, and subsequently had a feverish attack, which was followed by the painful swelling of the wrist-joint, which has existed ever since. You observe the enlargement of the joint, the oedema of the hand, the utter powerlessness of the fingers; you hear what the patient says of her sufferings, and you may judge of their severity from her care-worn aspect. Fomentations and leeches have afforded no relief. We shall now try the effects of the cautery.

[Chloroform having been administered, the cautery was applied on the back of the wrist, in the form of a cross; and eight days afterwards, Mr. Syme thus continued his remarks upon the case:—]

The patient says that she has improved every hour since the cautery was applied. She slept well the first night, and is now entirely free from pain at the wrist, as well as her uneasy sensations elsewhere. The oedematous swelling is almost gone, and the fingers are stronger, so that she can now grasp with sensible force. In short she is convalescent.

EXCISION OF THE ELBOW-JOINT.

You are aware, that after a long period of indifference, and not a little active opposition, excision of the elbow-joint has been established as the proper remedy for caries in this situation; and that more recently I have extended the use of this operation to ankylosis of the articulation, whether resulting from the direct effects of the injury, or caused by disease. Under such circumstances, the procedure has hitherto been regarded as much more difficult and operose than when the joint is still suffering from disease, on account of the strong and tough substance which requires to be divided. In a private case which lately occurred, instead of pursuing my usual course of removing by successive portions the different bones, I adopted the following method, and found it wonderfully facilitate the process.

Having made the ordinary incisions, I exposed the convex osseous surface, held the ulnar nerve to the side by a hook, and sawed through the bones about the middle of the olecranon. Nothing could be easier after this than insulating first one and then the other extremity, and sawing them off to the requisite extent. I now propose to proceed in the same way with regard to the patient before you, T. K—, aged seventeen, who, from disease in childhood, has her left elbow rendered completely rigid in a nearly straight position.

[Mr. Syme then performed the operation in the way here described.]

MEMORANDUM OF THE CONDITION OF THE GENERAL ORGANS IN THE BODIES OF FIFTY NATIVE INDIAN WOMEN, WHO HAD DIED OF VARIOUS DISEASES.

By MADOOSUDUN GOOPTA, S.A.S.

No.	Age.	Uterus.	Cervix and os Uteri.	Ovaries and Fallopian Tubes.	No.
1	46	Natural.	Natural.	Fallopian tubes obliterated.	1
2	50	Small, hard.	Os rigid and contracted.	Ovaries shrivelled.	2
3	35	Natural.	Os irregular, a tumour on one side.	Left ovary much diseased.	3
4	40	Ditto.	Healthy.	Healthy.	4
5	24	Ditto.	Cervix much inflamed, or ulcerated.	Left ovary enlarged and inflamed.	5
6	34	Ditto.	Os and cervix ulcerated.	Fallopian tubes strictured.	6
7	45	Ditto.	Os closed.	Both ovaries absorbed.	7
8	50	Ditto.	Fungous tumour.	Left Fallopian tube obliterated.	8
9	25	Ditto.	Os widely open.	Both ovaries healthy.	9
10	27	Enlarged by recent pregnancy, inflamed.	Inflamed.	Ovaries, &c., inflamed.	10
11	50	Swollen and soft.	Os ulcerated.	Healthy.	11
12	30	Natural.	Os scirrhus, deep ulcers.	Ovaries natural.	12
13	42	Ditto.	Cervix swollen.	One Fallopian tube obliterated.	13
14	40	Ditto.	Os ulcerated.	Natural.	14
15	30	Large and inflamed.	Lacerated ulcers.	General redness.	15
16	27	Natural.	Cervix inflamed, os ulcerated.	Tubes and ovaries adherent.	16
17	30	Gravid.	Cervix inflamed, os extensively ulcerated.	General inflammation.	17
18	28	Natural.	Cervix swollen, soft.	Ovaries sound.	18
19	50	Prolapsed.	Not unhealthy.	Natural.	19
20	30	Natural.	Cervix ulcerated, os raw and open.	Right Fallopian tube obliterated.	20
21	50	Ditto.	Os irregular, hard.	Ovaries absorbed.	21
22	36	Sloughing.	Cancerous ulcers.	Inflamed.	22
23	27	Natural.	Cervix and os inflamed.	Natural.	23
24	45	Ditto.	Ditto ditto.	Ditto.	24
25	46	Ditto.	Os obliterated.	Ovaries absorbed.	25
26	40	Fatty degeneration.	Cervix and os ulcerated.	Ditto.	26
27	25	Natural.	Tubercles in cervix.	Ovaries red.	27
28	30	Ditto.	Natural.	Healthy.	28
29	29	Displaced fundus adherent to rectum.	Cervix long and large, bent slightly backward.	Natural.	29
30	30	Natural.	Ulcers within the canal of the cervix.	Ovaries very hard.	30
31	30	Ditto.	Healthy.	Fallopian tubes adherent.	31
32	50	Ditto.	Cervix and os congested.	Healthy.	32
33	40	Ditto.	Healthy.	Hydatids in left ovary.	33
34	45	Ditto.	Ulcers in cervix.	Ovaries sound, Fallopian tubes obliterated.	34
35	45	Ditto.	Healthy.	Scirrhus of right ovary.	35
36	65	Displaced to right side, hard and swollen.	Cervix much ulcerated.	Ovaries congested, Fallopian tubes obliterated.	36
37	65	Natural.	Natural.	Right ovary atrophied.	37
38	60	Hard and small,	Cervix hard, os small.	Ovaries small.	38
39	50	Natural.	Cervix swollen and red.	Healthy.	39
40	30	Ditto.	Natural.	Ditto.	40
41	19	Ditto.	Ditto.	Ditto.	41
42	50	Fibrous tumour of the fundus.	Ditto.	Natural.	42
43	40	Natural.	Os very red, abraded.	Natural.	43
44	35	Ditto.	Natural.	Right ovary very hard and horny.	44
45	28	Long neck.	Ditto.	Healthy.	45
46	42	Natural.	Cervix fissured and hard; os red, abrasion.	Left ovary corrugated.	46
47	32	Large and soft.	Reddish.	Natural.	47
48	18	Natural.	Natural.	Undeveloped.	48
49	26	Ditto.	Ditto.	Natural.	49
50	22	Healthy.	Extensively ulcerated.	Inflamed.	50

Calcutta, March, 1855.

D. STEWART, M.D., First-Class Staff Surgeon,
Late Professor of Midwifery in the Medical College of Calcutta.

This interesting and valuable document from the far East speaks for itself. In fifteen cases out of the fifty, there was inflammatory ulceration; and in many the ulceration is noticed as extensive. In various other instances the cervix was also inflamed and indurated. Thus does it bear out all my statements and opinions respecting the frequency of inflammatory and ulcerative lesions of the cervix uteri in the dead as well as the living. It corroborates the results arrived at by Dr. West, and proves, at the same time, the utter fallacy of Dr. Robert Lee's and Dr. Tyler Smith's negative

assertions in 1850—assertions founded on the old post-mortem records of St. George's Hospital. It is impossible, also, to cast an eye over the list of lesions, uterine and ovarian, which it reveals, and not to feel that the defective nutrition and debility which usually accompany such lesions during life must have exercised a pernicious influence on the individuals in whom they were found, and must have thus contributed to their death, by depriving them of the power of resisting intercurrent disease.

FURTHER OBSERVATIONS ON DR. HENRY BENNET'S REVIEW OF THE PRESENT STATE OF UTERINE PATHOLOGY.

By W. TYLER SMITH, M.D.,

PHYSICIAN-ACCOCHEUR TO ST. MARY'S HOSPITAL.

THROUGHOUT the present controversy, which was none of my seeking, I have endeavored to keep steadily to two points. One of these has been, that the frequency and importance of "inflammation, ulceration, induration, and hypertrophy of the os and cervix uteri" have been overrated. The other is, that the more violent caustics, such as potassa fusa, and the white hot iron, when used in the treatment of uterine disease, especially of a non-malignant character, produce disastrous results. By these positions I abide, and the importance of the second cannot, in my opinion, be too highly estimated.

It appears to me, that Dr. Bennet, on the last question, is receding from the ground he at first took up. In *THE LANCET* of March the 29th, he stated as follows :

"I have been now many years in practice, and hundreds of my patients, poor and rich, are disseminated throughout the length and breadth of the land, but not one of them bears the trace of either mutilation or destruction of the cervix uteri."

And again,—

"I may safely say, that I have radically cured hundreds of women through their instrumentality, whom I could only have partially cured without, and that without ever having had a single accident, or mutilated a single patient."

But in *THE LANCET* of April 19th, Dr. Bennet writes :—

"It would be perfectly preposterous for me to assert that I was able to surgically treat, during a period of six years, such masses of patients, many suffering, as I have stated, from the most aggravated forms of cervical disease, without either the disease or the treatment leaving traces more or less marked in some females, and I do not for a moment contend that such was the case. What I do maintain is, that no patients of mine, public or private, present traces of mutilation, a word which I interpret as meaning unnecessary, unwarrantable destruction of organic structure, the result of treatment."

And, again, speaking of the case I have referred to, in which the vaginal portion of the os and cervix uteri had disappeared, and the os had become obliterated, he says :—

"It may, indeed, have been one of those in-

stances of pseudo-malignant diseases in which I occasionally find it necessary to destroy, not only the tumour or ulceration, but even the surface on which they rest, to secure the patient from relapse."

It is, it must be confessed, somewhat perplexing to deal with an antagonist who writes in one page, that of all his patients, "*not one of them bears the trace of either destruction or mutilation of the cervix uteri*," and in another, that he intentionally destroys, in certain cases, "*not only the tumour or ulceration, but even the surface on which they rest*." Of course, after this, it is perfectly open to Dr. Bennet to declare, that in any case of partial or entire loss of the os and cervix uteri, he destroyed it intentionally. But this was not his original position. It is the story of Philoctetes and his cave, who when shut up at one entrance escaped by another.

I am perfectly ready to enter upon such an investigation as the one Dr. Bennet proposes; but I suspect when Dr. Bennet mentioned it, he knew it was difficult or, impossible, to carry it out satisfactorily. The cases of loss of substance, after the action of the stronger caustics which I have seen, have spread over some years, and Dr. Bennet must devise some plan by which hospital patients out of date can be selected and found for examination. The case of S. F.—I have recently seen, and I shall be happy to furnish her address to Dr. Locock and Dr. Murphy. It would, however, be necessary for me to name two other accoucheurs to act for me in this matter, particularly, as although Dr. Bennet is ignorant of the fact, it is pretty well known that Dr. Murphy approves of Dr. Bennet's modes of practice. When this case has been examined, and reported on, I will try to furnish others, the only difficulty being that of finding patients who have been lost sight of, some of them for several years. I beg to propose Dr. Lee and Dr. Oldham, if they will act for me. The views of Dr. Oldham on the whole subject I am entirely unacquainted with. Dr. Lee is not more of a partizan than Dr. Murphy and he has had some experience in cases of mutilation from the action of potassa fusa, &c., having published several instances in the last volume of the "*Medico-Chirurgical Transactions*." Nothing would please me more than that this question should be decided by an Obstetric Congress, similar to those which settled the questions of the Introduction of Premature Labour, and the Removal of the Placenta after Parturition.

There are one or two personal and other points referred to in Dr. Bennet's last communication, to which it is necessary I should allude. Dr. Bennet refers to a case of Mr. Coulson's, recently published in *THE LANCET*, in which potassa fusa was applied to a bubo, and he states that, according to my view, Mr. Coulson must have been held to have mutilate his patient. But surely there is some little difference between the destruction of a single lymphatic gland, or a square inch of skin in the groin, and the risk of damaging such an organ as the os and cervix uteri?

It is quite true, as Dr. Bennet states, that I have sometimes removed carcinomatous enlargements,

from the os and cervix uteri by ligature, where these enlargements have been discharging freely, and giving rise to frequent hæmorrhage; but this is no contradiction to my remark, that I have known carcinoma in the first, or unbroken stage, converted into open cancer, by the use of potassa fusa. In the one case, life is as certainly prolonged, as it is in the other shortened.

It is a pure hypothesis of Dr. Bennet's, to state that there is in the os and cervix uteri a "cellular element," which enlarges to produce hypertrophy, and which is destroyed by an eschar, without damage to the proper tissue of the cervix. The os and cervix consists chiefly of rudimentary muscular tissue, and it is the opinion of Dr. Simpson, Dr. Meigs, and others, whose authority has been quoted by Dr. Bennet, that, under any persistent irritation, the muscular structure of the different portions of the uterus enlarges by a process of growth. Dr. Bennet teaches again, that the greater development of the mucous membrane of the cervix, as compared with the mucous membrane of the body and fundus, is the cause of the comparative frequency of cervical disorder; and that the uterus altogether is more liable to disease than the ovaria, because there is no mucous membrane in the latter. The fact really is, that the mucous membrane of the body and fundus, with its tubular glands, forms a more complex structure than the mucous covering of the cervix; and I think I have shown in my Lectures that, according to the best authorities, each Graafian vesicle is a follicle—a mucous follicle, and lined by mucous membrane. But everything in the anatomy and physiology of the uterus must be made to bend to the cervical despotism which Dr. Bennet would set up.

With reference to some other points, I beg to state, that I had commenced obstetric practice, and was using the speculum in the diagnosis and treatment of uterine disease before Dr. Bennet had himself determined what line of practice to follow. When I wrote the paper in 1850, of which Dr. Bennet complains so much, and in which I questioned the alleged frequency of ulceration, or the propriety of applying the term ulceration to every petty abrasion of the os and cervix, I had not the most remote idea of becoming a candidate for my present appointment at St. Mary's Hospital. It was only *after* the publication of the paper in question that I was invited by some of my present colleagues to come forward as a candidate in opposition to Dr. Bennet. I took no part whatever in the discussion, which followed respecting the use of the speculum, except to reply to a paper of Dr. Bennet's, which contained a personal attack upon myself.

Dr. Bennet is at some pains to show that, before my election at St. Mary's Hospital, I opposed the use of the speculum, but that subsequently I resorted to it under circumstances in which I had previously condemned it. Nothing can be more incorrect. In 1850 I did object to the use of the speculum at random in all women presenting themselves at public institutions for treatment. Tables had been published, in which women had been examined by the thousand, not because it was considered neces-

sary in each individual case, but to ascertain the percentage in which uterine disorder existed in women with and without uterine symptoms. Those who followed this plan acted towards living women precisely as Dr. Bennet's supporter, Madoosudun Goopta, very properly acted towards the dead. Against this practice, as regards the living, I wrote, contending that the os uteri and vagina should be treated with a little more reserve than the tongue or the throat, and I have not yet seen reason to regret this. I can truly say, that it has never been my practice, with private or public, patients, to examine with the speculum except in cases where manifest symptoms of local disease exist. Dr. Bennet quotes a passage in my book "*On Leucorrhœa*," in which I state that, as the rule, I examine "*digitally, and with the speculum if necessary*," in married persons, "*suffering from uterine disease, when the symptoms are severe*." Neither more nor less than this do I wish to say, nor have I ever said. Dr. Bennet seeks to draw a contradiction to the above from my writings in 1850, in which I contend against the use of the speculum in cases where the individual symptoms do not require it. The fallacy of his argument must be obvious to every one. Surely there is some distinction between examining with the speculum in cases of real and severe uterine disorder, and examining them by the thousand, well or ill, in order to frame a statistical table.

Dr. Bennet supposes me to be actuated by the wish to damage professional character and position. Such imputations are entirely unfounded, and I beg to observe, that in this controversy, Dr. Bennet is himself the aggressor. It was not until he had paraded me for three successive weeks in *THE LANCET*, as a convert to his pathological opinions, and as likely hereafter to adopt the plan of treatment, in uterine disease, by deep cauterization, that I felt it due to myself to show that these assertions and vaticinations neither were, nor were likely to become correct. He says my words are "hard." Facts make words hard. He asks why I do not defend from his attack the views I have advanced in my work on Leucorrhœa? Because I am satisfied to leave the book to take care of itself.

P.S.—Dr. Bennet, in his paper of last week, cites Dr. Scott, formerly of Madras, and now of Ootacamund, as being a very warm supporter of the doctrines advocated by him. I feel bound to say that I have been consulted by a lady, whose uterus was grievously mutilated by Dr. Scott while, with the best intentions, no doubt, carrying out the methods of practice recommended by Dr. Bennet. In the case I allude to, the posterior uterine lip had been destroyed, and the anterior lip was glued to the rectum. My opinion as to the condition of this lady was first asked, and I was then told her history. The case had led to very great unhappiness, and I had to do my best to calm the husband, who was at the time threatening the personal and other chastisement of Dr. Scott. The husband knew of the state in which his wife was before he came to me for my opinion, and he confirmed it subsequently by other testimony. I should not have dreamt of mentioning Dr. Scott's name, had it

not been introduced by Dr. Bennet; but I feel that a great principle is involved, which renders reserve, under the circumstances, impossible.

ON THE TREATMENT OF SOME FORMS OF RHEUMATISM AND NEURALGIC AFFECTIONS.

By JOHN TATUM BANKS, M.D., Dover.

My object in communicating the following case is to show the advantage of acupuncture as a remedy in the treatment of some forms of rheumatism and neuralgic affections. More than twenty years ago I published a paper on this subject in the *Edinburgh Medical and Surgical Journal*, a portion of which the Editor of THE LANCET did me the honour to transcribe. The experience of many years has confirmed my opinion of the value of acupuncture. I have ordered it in numerous cases—almost always with success—(never that I am aware of) with ill effects.

Although in China and Japan, and some other countries, acupuncture has, from time immemorial, been used, and is regarded as a most valuable remedy of undoubted benefit in certain diseases, yet it must be allowed, and I think regretted, that in England it has not met with the unprejudiced trial it deserves. The proposal to put a needle in the flesh as a remedial process is apt to excite a smile of incredulity, if not of ridicule; for few persons are inclined to think it probable that any benefit can arise from such a practice, and by many it is looked upon as a formidable remedy at the best, while really it occasions but very trifling pain, and often scarcely any whatever.

I select the following case, as admirably illustrative of the benefit to be derived, in certain conditions, from the introduction of needles into the parts affected. It will be perceived that it is the case of a surgeon, described by himself in a letter addressed to me. He is a gentleman in very extensive provincial practice, and, I need hardly state, of great intellectual and professional attainments:—

Wragby January, 26th, 1864.

"DEAR DOCTOR,—It gives me pleasure to comply with your request. In the course of my professional visits one morning in June, I had been riding a young and hard-pulling horse, requiring considerable exertion to manage it. I was fatigued by the journey, and perspired profusely. Soon after reaching home I had a second journey to take, and went in my gig, being still heated by the exertion of the morning. The afternoon, however, had become cold from a change of wind. I had not been long out before I was seized with chilliness, which continued till I reached home, after a drive of two or three hours' duration. In the evening I had a slight febrile attack, with general aching, stiffness, &c. I found I had taken cold, and after the use of a hot foot-bath I went early to bed, trusting that the warmth of the bed and the night's rest would set me right. This was not the case; the pain and stiffness of the chest

continued, and on the fourth night from the commencement of the attack I awoke after a short sleep, drenched in perspiration, experiencing extremely severe pain in, and rigidity of the muscles of, the chest, more especially of the left side and shoulder. The pain on attempting to move was excruciating. I found myself unable to expand the chest, and the breathing was wholly abdominal. I could not move from the posture in which I was at the time lying. A sense of oppression and heat about the sternum kept increasing, and the dyspnoea became so urgent that I was apprehensive effusion was taking place into the pericardium.

"Under these circumstances, I sought your advice and assistance; and, on your arrival, I was rejoiced to find that you did not participate in the gloomy view I had taken of the case, but regarded it as one of a neuralgic and rheumatic character, the aponeurotic and muscular structures being chiefly implicated.

"You proposed *acupuncture*, which, I confess, I was inclined to oppose, having no predilection for *such* a remedy, and being somewhat an infidel as to any beneficial effects to be anticipated.

"You, however, were so confident [I may say, so *positive*] that relief would follow the insertion of the needles, that I consented to the remedy. In the course of a minute or two after the introduction of the first needle, which was pushed downwards in contact with the lower portion of the sternum whilst I was sitting up, I experienced a sensation as if some strong tense structure, which had previously bound down the sternum, had suddenly given way. This sensation was followed by a sense of approaching syncope, which was removed on lying down. While in the recumbent position, I found, to my surprise and delight, that I could take a deep inspiration freely. But the muscular pain still continuing, and encouraged as I was by the great relief in my breathing already afforded, I now, on my part, anxiously wished for the introduction of other needles along the course of the fibres of the several muscles affected. This having been done, I felt, in the course of about ten or fifteen minutes, no uneasiness whatever in the chest, and was able to move about in any direction—indeed, so great was the relief, that after the removal of the needles I was able to dress myself with ease. During the remainder of the evening of the operation I felt well, but on the following morning, and for about a week after, I experienced some stiffness (but unaccompanied with pain) in the left side, which a second introduction of three needles, together with a slight anodyne for a few successive nights, entirely removed.

"In this statement I have endeavoured to relate my case as faithfully as possible, and I find it difficult to express in words the rapid and most extraordinary relief—as if by a charm—afforded by the insertion of the needles. Beyond the relation of the case, I have forborne to offer any remarks.

"I beg you will make any use of this letter you may think proper.

"Yours most sincerely,
"JOHN D. WRANGHAM."

"P.S.—It may not be uninteresting to you to know, that a short time ago I was sent for to visit a labourer suffering from a severe attack of pleurodynia, caused by his having caught cold while digging out a deep drain in wet soil during severe cold weather. As there appeared nothing to contraindicate acupuncture, it was had recourse to in this instance, and the relief and success attending it were as rapid and remarkable as in my own case."

In venereal rheumatism, and in acute inflammatory rheumatism—where the blood is circulating through the system a poisonous material; and in all cases where there is evidently a *constitutional* origin, or disorder of the hepatic functions, with derangement of the digestive organs and secretions, giving rise to impurities which enter into and circulate with the blood, and which need to be expelled or eliminated from the system before a cure can be expected; in such cases of rheumatic suffering, no relief can be looked for from the introduction of needles. But in all cases of rheumatic and neuralgic pains, either acute or chronic—whether lumbago, sciatica, or pleurodynia,—or those of an erratic kind (no matter where situated) which are not dependent upon an inflammatory state, upon a constitutional origin, or upon organic disease; provided the patients are most comfortable when warm, and are *decidedly relieved by the application of heat*: in all these cases it may, I think, be confidently affirmed that they will be singularly benefited by acupuncture, which will not only afford relief, but in most instances effect a cure.

In Dr. Copland's erudite work, the "Dictionary of Practical Medicine," the learned author, in speaking of acupuncture in the treatment of muscular or aponeurotic rheumatism, observes: "I have seen it resorted to in several instances with success; but I am not aware of much permanent benefit having been produced by it. The practice has fallen into its deserved disuse." Now this is a somewhat singular statement. Dr. Copland admits that he has seen it resorted to in several cases *with success*," and yet says that "the practice has fallen into its deserved disuse." He states that he is "not aware of much permanent benefit having been produced by it:" it is surely but just to inquire whether he is aware, in the several cases in which he saw it resorted to with success, that permanent benefit was *not* produced by it? At all events, a remedy that "in several cases has been resorted to with success" should be fairly tried; and found, from repeated failures, to be of little utility before it receives condemnation from so high a quarter. With every deference to an authority so eminent, I have no hesitation in affirming that acupuncture is not only, in certain cases, a good remedy, but one of the beneficial effects of which are quite as permanent as any that can be laid claim to for other remedies. I should not have said thus much, did I not feel anxious to draw the candid attention of my professional brethren to a most valuable but much-neglected remedy.

June, 1854.

REPORTS OF CASES OF DISEASES OF THE RECTUM.

By T. J. ASHTON, Esq., M.R.C.S.E.,

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HÆMORRHOIDS.

By the cases recorded in my previous paper, (LANCET, 1854), and which afford good illustrations of the large majority of those we shall be called on to treat, it is evident that in the less severe forms of internal hæmorrhoids constitutional treatment will succeed in entirely removing all the inconvenience and suffering the patient has endured, and that even in those which have existed a considerable time, and occasioned great local pain and general derangement of the system, we shall in many instances, by similar treatment, be able to afford relief to the patient from the several distressing symptoms, and enable him, with care and attention on his own part to the injunctions of his medical adviser, to enjoy immunity from his previous miseries. But although this remark holds good in most cases, yet others will be met with, in which, either from the persistence of pain, the annoyance and discomfort produced by the frequent prolapse of the tumours, the constant drain of blood, or the effect which its continuance has already produced in the system, and the remote sympathetic disturbances excited in the functions of the heart, brain, genito-urinary organs, &c., or other distressing effects, surgical interference will be necessary. Before proceeding to operate, it is most important that the constitutional cause, whatever it may be, should be removed or palliated, that febrile action be subdued by the administration of suitable remedies, that attention should be paid to the proper performance of the functions of the liver, skin, and kidneys, and that the colon be freed of fecal accumulations. The bowels should be freely relieved by an aperient and an enema some hours previous to the operation, so that they may not require to be moved for two or three days afterwards. It is to the neglect of these preliminary and most essential measures that the failures and sufferings mentioned by some surgeons are due, or to the unhappy selection of the cases, and operating when the local disease, or the state of the constitution, or presence of serious organic visceral disease, rendered surgical interference unadvisable and improper. For the removal of internal hæmorrhoids, either strangulation of the tumours by means of the ligature, or the application of strong nitric acid, as suggested by Dr. Houston in the twenty-third volume of the *Dublin Journal*, may be had recourse to. When the hæmorrhoidal tumours present a florid, granular surface, and do not project much above the surrounding mucous membrane, the application of nitric acid is the better mode of treating them; but when they are large, pendulous, or indurated, either from their original character, or from the effects of repeated inflammation, the ligature ought to be used, and is entirely free from danger, pro-

vided the precautions previously insisted on have been attended to.

Internal hæmorrhoids, preceded by dysentery; great loss of blood; stricture of urethra. Hæmorrhoids treated with nitric acid.

Major J——, a tall, fine man, of a naturally good constitution, but impaired by a long residence in India and active military service, had suffered several times from dysentery; for seven years had had piles, frequently lost considerable quantities of blood, the bleeding at times continuing for half an hour; defecation was always attended with pain and much straining, the pain being aggravated when the fæces were bulky and indurated; the bowel slightly distended at stool, but returned by muscular contraction. He had had various remedies prescribed, as lenitive electuary and sulphur, copaiba, Ward's paste, &c., but without benefit. No examination of the bowel had been made by the several surgeons he had consulted. His countenance and conjunctivæ were slightly yellow; tongue coloured with a creamy fur; skin dry; appetite moderate; had flatulence, and frequently felt fullness and pain at the epigastrium after eating; urine high-coloured, and voided in a small stream, with some straining; slight tenderness over the liver on pressure; no enlargement of it indicated by percussion; pulse feeble and irritable. By examination after the action of the bowels, the mucous membrane being prolapsed, a florid granular surface, from which blood freely oozed, was observed; it was about the size of a shilling, and slightly raised from the surrounding tissue; it was very painful when touched; the finger when introduced into the rectum did not detect any tumour. The treatment adopted was at first small doses of mercury with chalk, and extract of taraxacum, aperients every second morning, subsequently tonics, with nitric acid, and various preparations of iron; enemata of cold water were used, afterwards astringent fluids. Examination of the urethra detected a stricture, through which a No. 3 catheter was passed with some difficulty; the introduction of instruments twice a week was had recourse to, the size being gradually increased, till the natural calibre of the urethra was restored. By perseverance in the remedies, his general health was much improved, the countenance became clear, the pain in the region of the liver subsided; but though feeling much better, the bleeding from the rectum continued. Having given medical treatment a fair trial without much benefit to the local disease, I deemed the application of nitric acid advisable. The bowels having been freely moved by extract of colocynth and blue pill taken at night, and an enema administered the following morning, the florid granular surface of the pile was exposed by a speculum, and freely touched with strong nitric acid, chalk-and-water being subsequently used to neutralize the excess of acid, and prevent injury to the surrounding tissue. After the operation, a dose of laudanum was administered. On the third day, the bowels were moved by castor oil; for some days subsequently he experienced smarting

when at stool, but the pain gradually lessened. He was directed always to use enemata of cold water after defecating. It is now four years since I attended this patient, and he has not had the slightest return of any of the symptoms he previously suffered from.

Internal hæmorrhoids, producing severe pain in the back, down the thighs, treated by nitric acid.

Mrs. W——, aged thirty-nine, the mother of seven children, during her pregnancies suffered much from constipation, the bowels not acting for several days, and when relieved attended with much pain and straining. About three years previous to consulting me, her appetite became capricious; sometimes she ate voraciously, at others experienced an entire distaste for food; she frequently had heartburn, and was much troubled with flatulence. The bowels being excessively obstinate, she often had recourse to purgatives; defecation was attended with smarting pain and loss of blood, but the most distressing symptoms were severe "dragging" pain in the lower part of the back, acute spasmodic pain down the inside of the thighs, and frequent cramps in the legs; the catamenia were irregular, and her symptoms were much aggravated at these periods. Her countenance was dull, the tongue large and flabby, with the impressions of the teeth deeply indented in its edges; the pulse feeble; the abdomen was much distended, and percussion indicated a loaded condition of the colon; digital examination of the rectum produced pain in the left side; examination by the speculum ani showed the mucous membrane to be elevated at the part, and the surface granular and florid; the pouch of the rectum was filled with indurated fæces. Enemata administered by O'Bierne's tube were first had recourse to, so as thoroughly to unload the bowels, afterwards aperients, alteratives, and tonics were prescribed; and half a pint of water, containing thirty grains of tannic acid, were injected into the bowel each day after defecation. Under this plan some improvement took place, but the pain down the thighs and in the back, also in the rectum on the passage of a motion, continuing undiminished in intensity, it was proposed to apply the nitric acid to the pile. The operation was performed, and she was shortly afterwards entirely free from all the uneasiness and discomfort she had endured.

Internal piles; great loss of blood; extreme debility; palpitations; constant headache; nitric acid applied to hæmorrhoidal excrescences.

Mary S——, aged thirty-one, unmarried, of slight conformation; has never enjoyed good health; has not taken much exercise from feeling fatigue after slight exertion; from childhood has suffered from constipated bowels, which at times were not relieved for five or six days; catamenia always scanty, and attended with severe pain in the back; has had leucorrhœa for some years. First had symptoms of hæmorrhoidal disease about the age of twenty; she then experienced a sense of fullness in the

rectum, and pain when the bowels acted; also lost a small quantity of blood. She continued in the same condition for seven or eight years. Her symptoms then became much aggravated, and the amount of blood lost at stool considerably increased, which so reduced her strength, that when she consulted me, she could scarcely walk across the room. She complained of having palpitation of the heart on making the slightest exertion, and had constant headache, which was increased by the erect posture, and relieved when lying down; her feet and legs were œdematous; the bowels seldom acted without aperients, and defecation was attended with severe pain. Her countenance was sallow and blanched; her lips and gums pale; tongue coated; pulse quick and irritable. The rectum being prolapsed, two hæmorrhoidal excrescences were observed, one on each side, that on the left side being somewhat more than an inch in diameter, the other not quite so large; their surfaces were florid and granular. From the great effect produced on the constitution, and the condition of the piles, it was deemed advisable to remove the local disease as soon as possible; medicines were prescribed, and enemata used to remove fecal accumulation, and to improve the general health. When this plan had been pursued for about a week, nitric acid was freely applied to the morbid tissue, the bowel having been previously prolapsed by the administration of an enema. An alkaline solution having been used to neutralize the excess of acid, the bowel was then smeared with olive oil, and replaced. The acid caused severe pain for about two hours, it then decreased, and she slept well during the night. On the second day from the operation, the bowels were relieved without medicines, and only slight pain attended their action; two days afterwards, the skin being rather dry and hot, she took three grains of blue pill, and one of ipecacuanha, and twelve drachms of compound gentian mixture; the bowels were freely relieved, and the slight febrile action removed. After this, the bowels were kept free by mild aperients; and half a pint of water, containing two scruples of alum, was injected each day. At the end of ten days she was directed to use cold water only. She now experienced no pain at stool, nor lost any blood; for two months subsequently she took twice a day a draught, containing five grains of the ammonio-citrate of iron, twenty minims of aromatic spirit of ammonia, a drachm of quinine wine; syrup, a drachm; water, ten drachms. She also took a teaspoonful of cod-liver oil with each draught. At the expiration of this time she had gained a considerable amount of flesh; her countenance and lips no longer indicated a deficiency of blood; she was free from headache and palpitation, and was able to enjoy exercise; the leucorrhœal discharge had nearly ceased, and the catamenia had become more natural in character.

HEMORRHOIDS.

Internal Hæmorrhoids; existence for several years; operation by ligature.

Mr. S—, aged forty-three, tall, muscular system of ordinary development; is of very regular habits, and moderate in regard to both eating and drinking. Being engaged in business, he is not able to take much exercise. He has always been of costive habit, the bowels not generally acting oftener than once in two or three days. For many years he has suffered from the several annoying and distressing symptoms usually attending internal hæmorrhoids. About eight years previous to applying to me, the piles descend at stool; for a time they were retracted after defecation, but for several years he has been obliged to replace them; for two years they have protruded from the anus on his assuming the upright position. The discomfort and annoyance caused by their constant protrusion became so great as seriously to interfere with all the pleasures and enjoyments of life. He had not had advice for several years, but had treated himself, and possessed most of the books that had been published on the subject for a long time past. His countenance was clear; tongue but slightly furred, and not notched by the impressions of the teeth; his skin was cool, and the urine free from deposit. The sphincter ani was relaxed, and two hæmorrhoidal tumours, the size of hazel-nuts, dense and but slightly compressible, were prolapsed. By passing the finger into the rectum they were found to be connected to the upper margin of the internal sphincter. It being evident that removal of the tumours was the only treatment that could relieve him, and the state of the constitution admitting the immediate performance of the operation, it was decided that ligatures should be applied. He was ordered to take six grains of compound extract of colocyynth and four grains of blue pill at bedtime, and the following draught in the morning: compound infusion of senna, six drachms; infusion of cinchona, six drachms; rhubarb, eight grains; tartrate of potash, one drachm; compound tincture of cardamoms, one drachm: to have an enema of thin gruel. The bowels by these means having been very freely acted on, in the afternoon I passed a double ligature through the base of each tumour. They were seized separately by a pair of forceps, and drawn down by Mr. Thompson, who kindly assisted me, while I transfixed them with a needle. The ligatures having been drawn thoroughly tight; the ends were cut off within half an inch of the piles, which were returned within the rectum. Half a drachm of tincture of opium in camphor mixture was administered immediately. On the second day after the operation, my patient, feeling no pain, had left his bedroom. His skin was cool, tongue moist, and pulse quiet. A laxative was prescribed to be taken if the bowels did not act the next day. In ten days this gentleman called on me; the ligatures had come away, and the parts had quite healed. I advised him to take an aperient and tonic mixture to get the bowels into a regular state, and to inject half a pint of cold wa-

ter after defecating. This plan of treatment had the desired effect, and he has not since experienced the slightest inconvenience.

Internal Hæmorrhoid; constant descent of tumour; removal of ligature.

Mr. —, aged thirty-seven, residing in Portchester-terrace, of ordinary stature and conformation; nervous, anxious disposition; has always experienced difficulty in regulating his bowels, which have been habitually constipated; not accustomed to active exercise. For several years he has lost blood at stool, and at times had severe pain in the rectum, rendering him incapable of bodily or mental exertion. Two years previous to his coming under my observation, a tumour descended from the bowel when at the closet, and since its first descent, it has always been necessary to replace it by the finger. He mentioned these facts to Dr. Quain, the physician, who usually attended him, and who desired him to consult me. His pulse was weak; countenance pale; eyes dull; tongue furred; abdomen hard; skin dry; urine cloudy, which, under the microscope, presented numerous octahedral and dumb bell crystals of oxalate of lime. The sphincter ani was contracted; the mucous membrane of the rectum was observed to be congested. By digital examination, a tumour, the size of a cherry, was detected, attached to the upper and anterior margin of the internal sphincter by a fold of mucous membrane; it was firm, and but slightly elastic. From the nature of the tumour it was decided to remove it by ligature. He remained under the care of Dr. Quain for three weeks, during which time his general health was greatly improved. The bowels having been thoroughly freed by the administration of four grains of blue pill, and six grains of compound colocynth pill at bedtime the previous night, and castor oil and an enema in the morning, with the assistance of Mr. H. Thompson, I applied a double ligature to the tumour, transfixing its base with a needle fixed in a handle. He remained in bed three days, and experienced but little pain. On the fourth morning he took a dose of castor oil; the bowels acted freely, attended with some uneasiness in the part. He was now permitted to get up, but desired not to stand or sit too much. To take the following draft every morning:—Compound infusion of gentian, one ounce and a half; sulphate of magnesia, one drachm; carbonate of magnesia, ten grains. One ligature came away on the fifth day, and the other on the ninth; for some days afterwards he had smarting at stool, but it gradually subsided. He took the medicine for three weeks, after which the bowels acted freely each day without it; he had greatly improved in appearance, was quite cheerful, and expressed himself as being better than he had been for many years.

Internal Hæmorrhoid, attended with great pain, bleeding, and constant descent of the tumour; ligature applied.

The following case was also sent to me by Dr. Quain:—

Mr. —, a publican, tall and stout, his eyes dull, and sclerotic conjunctiva yellow, his tongue large and flabby, covered with a thick fur, and the edges deeply notched by the impressions of the teeth. He informed me he took little or no exercise, sometimes not leaving the house for upwards of a week; he lives freely, but is not often intoxicated; had always suffered from constipation, and had long been annoyed by dyspeptic symptoms, as well as various uncomfortable sensations in the rectum. Four years previous to applying to me, he discovered that "a lump" descended at stool, attended with bleeding and severe pain; it had always been necessary to replace it with his fingers. Digital examination detected on the right side an indurated pile, attached to the bowel, about two inches above the anus. An enema being administered, a pile the size of a large cherry was extruded. Considering the density of the tumour, its constant descent, and the strong desire of the patient to be relieved of his sufferings, it was decided an operation should be performed. Under the judicious treatment of the physician who referred him to me, in ten days the constitutional defects were remedied. At the expiration of this time, with the assistance of my friend and colleague Mr. Hulme, I carried a needle, armed with a double ligature, through the base of the tumour, and tied it firmly in two portions. The bowels had been freely relieved previous to the operation; after it had been performed, a dose of opium was administered. For four days, there was slight feverish excitement and cedema around the anus. These yielded to salines, low diet, and linseed meal poultices. On the third morning, he took some castor oil, and repeated it every second morning for a few times. Enemata of flaxseed tea were daily used. By the eleventh day the ligatures had come away, and the ulcers resulting had quite healed. The necessity of taking exercise was strongly impressed on him, and he was directed to inject half a pint of cold water after defecating, to use soap-and-water externally morning and evening, to live moderately, and to keep the bowels regular by the following mixture: compound infusion of senna, four ounces; compound infusion of gentian, three ounces; tartrate of potash, four drachms; tincture of orange-peel and syrup of orange-peel, of each four drachms: three tablespoonfuls early in the morning.

Internal Hæmorrhoids of long duration; great loss of blood; removal of the tumours by ligature.

K. M—, aged thirty-seven, a cook in the service of Mr. Hulme, who requested me to see her, as she was then suffering from severe indisposition. She stated she was first attacked with piles ten years ago, and had never been well since. For the last five years, she has lost considerable quantities of blood at intervals. Hæmorrhage had been going on for three weeks previously to my seeing her. She had not informed Mr. Hulme of her indisposition till she was no longer able to keep about. He ordered her to bed, and directed cold and astringent applications. When I saw her, she was perfectly blanched, and hardly able to turn in bed. Her

- pulse was feeble and quick. On making an examination, the anus was observed surrounded by a fold of integument greatly distended with serum, and having a pale, semi-transparent appearance. Three internal hæmorrhoidal tumours existed; they were pendulous, spongy in texture, and about one inch in length, and three-eighths of an inch in diameter. The mucous membrane was granular, and bled freely on being slightly touched.

Taking into consideration the duration of the disease, the state of the patient, and the condition of the tumours, I deemed removal of them by ligature the most appropriate plan of treatment. Early in the morning, she had taken a dose of castor oil, which had acted freely. It was therefore determined to perform the operation at once. An enema of warm water was administered, and on being ejected the tumours were prolapsed. Double ligatures were then passed through each of them, and tied tightly, so as entirely to interrupt all vascular and nervous connection. The ends of the ligatures being cut off, the piles were returned within the sphincter. Thirty minims of the tincture of opium were given, for the purpose of producing temporary constipation, and of tranquillizing the system. On the second day after the operation, she had pain in the bowel, and slight pain in micturating. Directed to have a hip-bath, to take a dose of castor oil the following morning, and to have an emollient enema twice in the twenty-four hours. The whole of the ligatures had separated by the eighth day; no bleeding had occurred since their application. Slight inflammation of the rectum supervened, which was due to the patient not attending strictly to the directions given her with regard to diet and medicines. It speedily yielded to simple treatment, and she made a favourable recovery. The external fold of oedematous integument collapsed, and the anal orifice resumed its natural size. She has had no pain, hæmorrhage, or other symptom of the disease, and continues perfectly well.

Remarks.—Hæmorrhoidal tumours are by some surgeons included in a single noose; but the method is unadvisable; for unless they are connected by a very narrow peduncle, the ligature cannot be drawn sufficiently tight effectually to cut off all vascular connexions, whereby the parts are longer in separating and a greater degree of inflammation and irritation is induced. Another important objection is the liability of the ligature to slip off, necessitating a second operation, and adding greatly to the patient's sufferings; in several of the cases recorded by Mr. Mayo and Mr. Howship these evils occurred, and instances have fallen under my own observation. It is, therefore, better always to pass a double ligature through the base of each tumour, and to tie it in two portions. An ordinary suture-needle may be used, but a small and well-made nævus-needle will be found the better and more convenient instrument. Sir Astley Cooper recommended the ligatures should not be drawn tight, thinking thereby to lessen the pain and irritation, but induced that which he was desirous of avoiding. When the object of the operation is considered, it

cannot be doubted for a moment that the ligatures ought to be drawn as tight as possible, and I have never had occasion to repent having done so.

Cavendish-square.

ON THE PRACTICABILITY AND FEASIBILITY OF PERFORMING THE OPERATION OF EXTRACTION IN CERTAIN CASES OF ARTIFICIAL PUPIL AND CLOSED PUPIL, COMPLICATED WITH OPACITY ON THE LENS, OR ITS CAPSULE, OR OF BOTH.

By GEORGE CRITCHETT, Esq., F.R.C.S.,

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I PROPOSE, in the present paper, to bring before the notice of the profession some cases of ophthalmic disease that afford types of certain conditions that have hitherto been peculiarly embarrassing and unsuccessful in their treatment, and that are by no means uncommon, and found upon these cases suggestions for a method of operating that is at variance with the rules that have hitherto been laid down by the best authorities on diseases of the eye.

There are two morbid conditions to which I desire especially to draw attention. The first is where an artificial pupil has been made, and the lens or its capsule, or both, are found to be opaque at the time of the operation, or to have become so at a subsequent period. The second is where, in consequence of some form of iritis, the pupil is small, irregular, and more or less adherent, and the small portion of the capsule that is visible presents a white opacity, with a fringe of uveal deposit, the amount of both varying much in different cases. In the first of these conditions, one of two complications exists; if it be a case of penetrating ulcer or wound of the cornea, with a dense opacity of a portion of the cornea, in which an artificial pupil has been made opposite to the most transparent part of the cornea, under these circumstances, the anterior chamber is small and shallow, and the amount of aqueous humour is of necessity very limited, and far below the normal average; if, again, it has been a case in which the disease has been in the iris and lens, there will be a morbid condition of the aqueous chamber, and the proneness to the lighting up of a slow form of inflammation of the deeper textures of the eye. In the second of these conditions, in which the pupil is small, irregular, and adherent to an opaque lens, the sight is often seriously damaged, and it is difficult to determine how far this is due to visible changes in the lens and its capsule and the iris, and how far to changes in the deeper textures consequent upon the former iritis. The previous history, and the appearance of the eye, are our only guides in determining this.

In both classes of cases, when an artificial pupil has been made, and the lens is found to be opaque, or has become so at a subsequent period, it is a most important point to determine what is the safest and most successful method of getting the cataract out of the field of vision. The best and

more recent authorities seem to be very meagre and unsatisfactory upon this point. In the last edition of Mackenzie's work, I have not found any allusion to the complication of cataract with artificial pupil. He merely states generally, that extraction should never be attempted where adhesion exists between the iris and the capsule of the lens. Mr. Haynes Walton writes as follows: "When the pupil is adherent to a capsulolenticular cataract, and the cornea is sufficiently clear in the centre to allow it to be seen, the cataract must be attended to. This has been fully dwelt on under the head of "Drilling." "When the opacity of the cornea precludes the application of instruments to the centre of the iris, or when adhesion of the iris to the cornea renders it impossible that the cataract can be operated upon without transfixing the iris, the pupil should first be made, and the opaque lens be disposed of afterwards—that is, by a subsequent operation for *solution or displacement*." Mr. Dixon does not, as far as I can perceive, lay down any rules upon this point in the body of his work on the Eye, but in the appendix he mentions a case which is so applicable to this subject that I beg to quote it:—

"John R—, aged sixty-seven, presented himself, in June, 1852, in the following condition:—Both pupils were very small and irregular, and closed by a whitish membrane, evidently the product of old iritis. I made an artificial pupil. I was sorry to find the lens opaque, and presenting the ordinary appearance of a firm senile cataract. To extract or to depress this seemed equally out of the question, on account of its firm adhesion to the iris—to say nothing of the objections which, to my mind, always exist against 'depression' as an unscientific and destructive operation. I had therefore no alternative but to get rid of the lens by solution. The needle was first used about the beginning of August, again at the end of September, and again early in December. Early in March the edge of the cataract opposite to the artificial pupil was absorbed, the bulk remaining unacted upon. With a convex glass, the patient could read large type."

The above quotations from these modern authors tend to show that but little attention has been given to this point, and the few hints that are thrown out suggest the operation of solution or of depression as the only alternatives. *A priori* reasoning would lead to the conclusion that these two operations offer but faint prospects of success. Solution is not a very prosperous operation even in a normal condition, unless the cataract is soft; but when the anterior chamber is diminished in size, and the aqueous humour is lessened in quantity, the very conditions upon which absorption depends are very materially curtailed, the space in which the fragments of the broken lens lodge is too small, and the old disease to which the change in the eye has owed its existence, is prone to be aroused. These form serious objections to this operation under such circumstances; and, I may add, that the unfavourable results which have seemed theoretically probable, I have found, in several instances,

practically true. It was the occurrence of an unsuccessful case, in which, after making an artificial pupil, and carefully breaking up the cataract, destructive inflammation ensued, that led me to the conclusion that it is an unsuitable and dangerous operation. As regards "depression," I quite agree with Mr. Dixon, that it is always an unscientific operation, and under the conditions I am now considering, peculiarly so. If the cataract be soft, it is impracticable; and if hard, the adhesions very much increase the probability of its rising again into the axis of vision, and the previously diseased state of the eye renders the presence of a cataract floating in the vitreous humour a most undesirable and dangerous complication.

These very series, and even fatal objections to these two modes of operating in cases of artificial pupil, complicated with cataract, led me carefully to reconsider the whole subject, and to examine into the force and validity of the objection to extraction through an artificial pupil. They may be stated as follows:—First the adhesions that exist between the capsule and the iris. Secondly, the unyielding character of the artificial pupil preventing the escape of the cataract. Thirdly, the risk that in cases where an opacity of the cornea already exists, the flap that is made for the removal of the cataract may not unite, or, if it does unite, may lose its transparency.

The more I reflected on this subject, the more I felt inclined to doubt the validity of these objections. The adhesions, which are always considered by ophthalmic surgeons as entirely prohibiting extraction, only exists between the capsule of the lens and the iris. The cataract itself lies as loose as ever within its capsule, and will as readily escape when the capsule is freely opened; so that this, which has always been regarded as the principal objection, is quite fallacious and unsubstantial.

The other two objections have not been found of any weight when put to the test of experiment. I am, therefore, of opinion, that in all cases where opacity of the lens coexists with an artificial pupil, the opaque lens should be extracted through the artificial pupil. If it occur in a young person, and the cataract is soft, it may be removed through a small opening, just sufficient to admit the spoon of the curette, with which it may be gradually but effectually removed. When the cataract is firm, and of the usual size, a section must be made close to the junction of the cornea with the sclerotic, and in such a position that the flap corresponds with the artificial pupil; the capsule must be opened in the usual way, and the cataract may be gradually pressed out just as readily as in an ordinary case of cataract. One inconvenience that frequently attends the operation of extraction in a normal eye—I mean prolapse of the iris—never can occur in consequence of the artificial pupil. I have had several cases illustrative of these points, out of which I propose to select the following:—

CASE 1.—Mary Anne A—, aged twenty-eight, came under my care at the London Hospital early last June. About a year previously she

• had entirely lost the right eye, the globe of which was shrunken. In the left eye there had been a penetrating ulcer, with complete adhesion of the pupillary margin of the iris to the corneal cicatrix; the anterior chamber was consequently diminished both in depth and circumference; about half the cornea retained its transparency; the iris also appeared healthy, with its fibres tightly drawn towards the cicatrix, to which it was firmly adherent. The patient could just distinguish light from dark; and had been in that condition about nine months when she first came under my care. The first step towards the restoration of sight was the formation of an artificial pupil, which was made in the following manner:—A small opening was made in the cornea, close to its junction with the sclerotic; the canular forceps were introduced, and a strip of iris was drawn away from its attachments to the scar in the cornea, and having been brought through the opening, was cut off. A well-defined narrow, oblong pupil was thus formed obliquely upwards and outwards, opposite the largest clear surface of the cornea. It was then found that the lens was opaque. About three weeks after the first operation I made a small section in the cornea, about a line and a half in extent; and after opening the capsule with a needle, with the aid of the spoon of the curette, the cataract, which was soft, was gradually and completely removed, good union took place, and the patient recovered her sight so far as to be able to read with a suitable lens.

CASE 2.—James B—, aged fifty-four, first applied to me at the Ophthalmic Hospital about eight years ago in the following condition:—The left globe was shrunken, and had been destroyed some years previously from inflammation. In the right eye the lower half of the cornea was densely opaque, and the pupil was partially adherent, and drawn down behind the opacity so that there was no useful vision. I succeeded, with Tyrrell's blunt hook, in making a well-defined oblong pupil directly upwards opposite the transparent part of the cornea; the lens was not injured. For above seven years he enjoyed useful vision, and earned his living. At the end of that time his sight began gradually to fail, and when he again applied to me, being about eight years after the first operation, he was once more nearly blind. On examination, I found a dense amber cataract occupying the pupil. After much deliberation, I determined to attempt extraction. I had never tried such an operation, nor had I ever heard of its being done, and I could not help fearing that a hard fully-formed cataract might refuse to pass through an artificial pupil, and even if that difficulty was overcome, that the flap might become opaque. I was, however, agreeably surprised to find that the operation was as easy and as successful as an ordinary case of extraction. I made the upper section close to the sclerotic, and very nearly of the usual size. Everything progressed favourably, and in a few weeks after the operation my patient was able, with a suitable lens, to see as well as after the first operation.

CASE 3.—Wm. L—, aged thirty-one, came under the care of my colleague, Mr. Wordsworth, in January last. The left eye was irretrievably lost; in the right eye there was a faint perception of objects; the pupil was small, irregular, and adherent to the capsule of the lens, which was opaque. Mr. Wordsworth made the man an artificial pupil downwards and outwards with a pair of canular forceps, so as not to injure the lens or its capsule—a method that was, I believe, suggested and first executed by my friend, Mr. White Cooper. Soon after this the man came under my care. Very little improvement of sight followed this operation. On examination, an opaque lens, with its defined sharp edge, could be plainly seen through the artificial pupil. I extracted this very readily through a moderate-sized section; good union took place, and the artificial pupil closed again. A few weeks after, I opened this with two needles in such a way that I once more succeeded in getting a small and nearly central pupil, through which he has now very useful vision. These cases, at least, prove the possibility of extracting a cataract, even when hard and fully formed, through an artificial pupil of average size, and the fair prospect of success with which such an operation may be undertaken. It is one which I should always perform in future, and I feel assured that as contrasted with former methods, it enormously increases the patient's prospect of recovering sight. There is another class of cases equally important and more numerous, to which I have applied the same principle. I allude to cases, the result of old and neglected iritis of a chronic character, in which the pupil is small, irregular, and adherent, and the capsule of the lens, and sometimes the lens itself, are opaque, and in which, as a consequence, there is no useful vision, and to which I propose to direct your attention in another paper.

ON THE DETECTION OF STRYCHNIA IN SOLUTION WITH POTASSIO-TARTRATE OF ANTIMONY.

By JOHN W. OGLE, M.D., F.R.S.,

PATHOLOGICAL CURATOR AT ST. GEORGE'S HOSPITAL.

A LETTER appeared in yesterday's impression of *The Times* newspaper stating that the now well known and so-called "colour" test for strychnia—i.e., the sulphuric acid and the bichromate of potash (which I believe Otto originally proposed)—was destroyed by the presence of the potassio-tartrate of antimony. I beg leave to say, that on the same day (yesterday) I made some experiments with reference to this point, in conjunction with Mr. W. Ogle, of Corpus Christi College, Oxford, but we found that the presence of antimony had no influence whatever in hindering the ordinary effect of the re-agents. On taking $\frac{1}{16}$ part of a grain, and using the requisite care, so that an equal amount of the tests should be added to both solutions, we found the same colour to be produced in that solution to which the potassio-

tartrate of antimony was added as in that from which we excluded it.

In some experiments which I have been performing since the subject of strychnia has been so much considered, I have detected ~~part~~ part of a grain (easily recognisable in a crystalline form by the microscope), in a clear solution, *by the colour-test*, first evaporating it to dryness. And I may remark that I have detected very faint traces of strychnia in the urine of a patient (six gallons concentrated to a syrup) who had been for some time taking the extract of the nux vomica. This I did some weeks ago. I would suggest that in this way the examination of urine might possibly be of service, should any other unfortunate case take place, such as the one at this time present in the minds of us all.

Upper Brook-street, Grosvenor-square, June 11th, 1866.

Medical Societies.

MEDICAL SOCIETY OF LONDON.

DR. CHOWNE, PRESIDENT, IN THE CHAIR.

POLYPOID GROWTH OF THE UTERUS.

MR. HIRD exhibited a polypoid growth which had been removed by excision after ligature from the cervix and os uteri of a patient of the President's, in the Charing-cross Hospital, aged forty-seven. It was the size of a child's head; and its pedicle, about two inches in diameter, appeared to grow from the whole of the inner surface of the left side of the neck of the uterus, which was much enlarged. The structure was that of the cellulovascular variety of these formations, the vessels being unusually large. At the time the tumour was removed, and for a fortnight previously, the os and cervix uteri had been dragged by its weight through the vulva; but until recently, although it frequently protruded, the patient herself had been able to return it and retain it in the vagina.

DR. CHOWNE remarked that the tumour had been long regarded as a prolapsus of the uterus, and had been returnable into the vagina at will, by the patient herself, for the last twenty years. When he first saw it, he found it was easy to pass the finger to the end of it, and feel the uterus. It was then as large as an infant's head. The bladder was but little interfered with by the tumour, and the patient suffered slightly from constipation.

MR. HIRD also exhibited the mamma of a lady, aged forty-six, which he had excised. There were three hard, lobulated cancerous tumours, imbedded in the adipose tissue of the gland. He observed, that there were circumstances of practical interest in the case. The disease had been eight months in forming, the first evidence of enlargement having been observed at the time menstruation ceased. Very little pain had been felt until two months before the operation; about this time one of the lymphatic glands in the axilla became enlarged and painful. The tumour was

about the size of a pullet's egg, movable, and not adherent to the superjacent skin. The nipple was natural, and did not manifest the signs of retraction usually noticed in carcinoma of the mamma. Mr. Hird observed, that a lymphatic gland in the axilla had become hard, swollen, and painful, and infiltrated with the same diseased product as the mammary gland, although there was no perceptible change in the nipple or skin over the primary seat of the disease; and that in this case, the generally received opinion that the implication of these glands is coincident with that of the skin at the primary seat of injury, was not verified.

SUDDEN DEATH; FIBRINOUS CONCRETION..

DR. RICHARDSON related the case of a man, fifty-nine years of age, who died suddenly. The heart was found flabby and fatty, and the whole aorta, to its division into the iliacs, was lined with a fibrinous tube, pervious to the passage of the blood.

MR. BIRKETT read a paper on

PRACTICAL DEDUCTIONS FROM A CLINICAL RECORD OF TWENTY-SIX CASES OF STRANGULATED FEMORAL HERNIA.

The author commenced by stating that the object of the paper was, 1st, to bring prominently into the foreground the causes of death; 2nd, the circumstances by which those causes are brought about; and 3d, the means by which they may be avoided. It was shown, by means of a table of the cases, that a certain number of unfavorable circumstances occurred in each case, and that, in proportion to the aggregate, as a general rule, the case was cured, or terminated fatally. But in some of the cases only two, three, or four unfavorable circumstances existed, and yet the patients died; and in these, as well as others with a larger number, the causes of death were sought for and demonstrated. Of the twenty-six cases, all of which were operated upon by the author, one half terminated fatally. In the fatal cases, death resulted from causes over which the operation could have but little influence; and it was undertaken only with the view to place the patient in a condition more favorable to recovery. The causes inducing the fatal result may be thus enumerated:—

1. The consequences of a journey performed while the patient was suffering with strangulated femoral hernia.
2. The defective constitutional nutrition of the patients generally.
3. Irrecoverable prostration, the result of long-continued vomiting and strangulation of the bowel in aged women.
4. Violence inflicted on the hernia. To this cause the death of not less than five out of the thirteen is to be attributed.
5. The administration of purgatives before the operation.

The author unhesitatingly preferred to reduce the hernia without opening the peritoneal sac in those cases in which the surgeon would be justifi-

fed in returning the protrusion by the taxis, if it could be accomplished.

In the twenty-six cases the peritoneal sac was opened in twelve, and the causes which prevented the reduction of the hernia without so operating were the three following:—

1. The contents of the sac.
2. The morbid condition of the contents of the sac.
3. The dimensions of the neck of the sac, and the unyielding state of its tissue.

Six cases were related in which the author had reduced the hernia by a simple division of the fibrous tissues about the neck of the sac, and external to that covering of the hernia known as the fascia propria. To this simple method of relieving constriction around the bowel the author gave the name of "The Minimum Operation." The causes of death in the fatal cases were shown, by post-mortem examination, to be referrible to peritonitis; injury to the bowel inflicted in the taxis; exhaustion after fecal fistula; phlegmonous inflammation; collapse; acute bronchitis; and perforation of the bowel. Of the cured cases, the minimum of time during which the bowel was strangulated was three hours; the maximum was seventy-seven hours. Of the fatal cases, the minimum period of strangulation of the bowel was eleven hours; the maximum seventy-nine hours. Of the cured cases, the average number of hours during which the bowel was strangulated, amounted to thirty-three. Of the fatal cases, the average period of strangulation of the bowel was forty-six hours. The causes of death were primary and secondary:—Prostration; peritonitis; gangrene of the intestine; perforation. 2. Bronchitis; abscess behind the peritoneum; phlegmonous inflammation and suppuration. The circumstances by which they were brought about:—Age; a journey; the defective constitutional nutrition of the patient; the morbid state of the canal above the strangulated piece of bowel; injury of the hernia caused by the constriction of the ring, and by manual violence inflicted on it; the duration of the sufferings; the intensity of the constitutional sympathies; fecal fistula; neglect of the tumour; the administration of purgatives; the warm bath. The means by which they may be avoided are:—By care in manipulation; the early relief of the bowel from constriction; the reduction of the hernia without opening the peritoneal sac; the exhibition of opium; and the avoidance of all causes likely to induce exhaustion.

Mr. HUNT referred to the great injury inflicted on the patient by the taxis, when employed in a rough or improper manner. When used with gentleness and perseverance—the tumour being regarded thereby as a bag of fluid—the taxis, in his hands, had been always successful.

Mr. HIRD had originally opposed the operation for hernia without opening the sac, but the success which had since attended the proceeding had induced him to alter his opinion. The practical point in Mr. Birkett's paper was its advocacy of operating early, a necessity strongly insisted upon

by the late Mr. Hey, of Leeds. He agreed with the author of the paper respecting the non-employment of purgatives both before and after the operation, and on the use of opium after the proceeding. The strong objection to the use of the taxis referred rather to cases of femoral than to inguinal hernia; more rapid evils might ensue in the former than in the latter from the use of the taxis. In femoral hernia, the sooner the operation was resorted to the better. He agreed, also, with the author of the paper as to the effect of shock, &c., in interfering with the success of the operation.

Mr. HALE THOMSON observed, that Mr. Hunt's wonderful success with the taxis differed from that of other practitioners. No such boast could have been made by Cline, Abernethy, or Cooper. He (Mr. Thomson) differed with the author of the paper in his opinion respecting opening of the sac. He thought in all cases the sac should be opened. He thought in complicated cases it was undesirable to give opium after the operation, as the symptoms might thereby be masked, and the practitioner misled. With respect to the taxis, he thought the rule to guide us was, to desist from its use immediately that it gave pain; then we should operate at once.

Mr. HENRY LEE related some cases, to show the necessity of opening the sac in certain instances of strangulated inguinal hernia.

Mr. DE MÉRIC spoke in high terms of the care and lucidity with which the author of the paper had drawn up his tables, and of the patience and perseverance necessary for collecting so many cases. Mr. Birkett was known as an indefatigable caterer of facts, and he deserved much praise for making such splendid use of his opportunities at Guy's Hospital. Mr. de Méric had been carefully watching the conclusion of the paper to hear what deductions the author felt authorized to draw from the cases of death and recovery after the operation for strangulated femoral hernia which had been quoted; and he (Mr. de Méric) certainly thought that some of the rules laid down were fully worthy of being carried out, and very properly deducted from the results of the cases. Time did not allow observations on some of these rules, as the opening of the sac, the mode of incision, and the most advisable time for operating; but he would just mention that some of Mr. Birkett's remarks had reference to circumstances over which the hospital surgeon had no control—viz., the constitution of the patient, and the fatigues which may have been endured during strangulation. Operations *must*, in extreme cases, and under very unfavourable circumstances, be performed, and the rules could only apply to the after-treatment. Much had been said by the author of the paper, and some speakers, respecting the mischief of reckless attempts at taxis; he (Mr. de Méric) thought that some of the epithets used were too strong, and that "imprudent attempts" were quite sufficient to characterize the practice of some surgeons who might be carried too far by the wish of preventing the necessity of a hazardous operation. The gradual, gentle, and protracted taxis mentioned by Mr. Hunt was certainly va-

luable, and he (Mr. de Méric) quoted the opinion of Mr. Hilton, of Guy's Hospital, who had been successful in this mode of reduction, and who gave it his full advocacy. It was well known that the elder Amussat, of Paris, considered no strangulation insuperable, and that he had often succeeded by persevering, and, perhaps, somewhat violent efforts, in returning the hernia without the use of the knife. That mischief might be done by unskilful and indiscreet hands was, however, but too true. Mr. Birkett had stated in his paper, that in certain cases he divided a very small extent of tissues, so as to lessen the chances of untoward results. This the author called his minimum operation—a term very happily chosen, whether referring to the minimum of cutting, or the minimum amount of danger. This anxiety of the author to divide as little as possible of the tissues, reminded him (Mr. de Méric) of a plan lately proposed by M. Seutin, the eminent Brussels surgeon. The latter, instead of cutting down upon the strictured portion of the sac, introduces his finger, or nail, without having recourse to the knife, between the neck of the sac and the ring, by the side of the tumour and along the unbroken skin, and *tears* the fibres of the ring. The constriction thereupon ceases, and the herniated intestine or omentum is easily returned into the abdomen. Numerous experiments on the dead body (which are too seldom performed in this country), and successful cases, are brought forward by Mr. Seutin in the Belgian medical papers, the Brussels surgeon contending that the knife may henceforth be completely dispensed with, and strangulated hernia be relieved by a bloodless operation.

Mr. BIRKETT, in reply, said that a case was rarely admitted into a hospital in such a state as a prudent surgeon would feel justified in applying the taxis. He had seen more than one case of rupture of the intestine from the violent use of the taxis. He still urged the necessity of operating early. With respect to reducing the hernia without opening the peritoneal sac, he could only say he had never seen any bad result from it.

DISEASE OF THE HEART.

Dr. WILLSHIRE exhibited the heart of an individual who came under his care in a hopeless state, after having been for some time attended by a homœopath. There was great thickening of the aortic valves, and considerable disease of the mitral valve, with extensive pneumonia in both lungs. This result, he said, could not be regarded as surprising, considering the nature of the therapeutic principles of homœopathy.

Dr. GIBB mentioned, that some time since, an altercation having taken place between a homœopathic practitioner and the physician of a hospital at Montreal, the former had twenty-four cases placed under his care for trial. One of these was a case of pneumonia, which, under his treatment, became so alarming that it was taken from him, and the patient fortunately recovered.

Dr. WILLSHIRE said, that in the case he had mentioned there was a slight puckering on the

plural surface of the lung, beneath which he found a single tubercle, about the size of a pea, in a state of retrograde metamorphosis, in a calcareous condition. This was the only evidence of tuberculous deposit which he observed.

Mr. MILTON exhibited some specimens of urine passed by a patient who, fifteen months ago, was in an extremely anasarctous state, the urine being so albuminous that it became quite solid on the application of nitric acid or heat. He administered elaterium five times; the woman appeared very little benefited, but she gradually recovered, and no trace of albumen could now be detected by the same tests. He suggested that an action having once been set up by the elaterium, that agent need not be again administered.

Dr. GIBB said that albumen might be present in the urine, though it could not be detected by nitric acid or heat. In some cases a more delicate test was required, such as bichloride of mercury or ferrocyanide of potassium.

Dr. GIBB exhibited a foetus between four and a half and five months old, which he said lived half an hour, having breathed and moved, and passed meconium. It weighed fourteen ounces and a quarter.

Dr. HARRIS said he was once called to a case of abortion of twins; they were under five months, but one of them gasped several times.

Mr. BAKER BROWN related the following case:—

PROCIDENTIA UTERI; OPERATION; CURE.

Julia L—, aged 21, admitted into St. Mary's Hospital on the 29th of February, 1856; single. Has had no child, abortion, or miscarriage; admits having had intercourse; three years ago was quite well, but about that time, lifting a heavy weight, strained herself; the accident happened while at her occupation of riband weaving. Immediately afterwards pain and bearing-down came on, and a leucorrhœal discharge, from which she habitually suffered, was very much aggravated. At the end of a week the womb came suddenly through the os externum while she was walking. Since then, the womb has always protruded upon assuming the upright posture, and defecation. She can return it when lying down, but it does not recede without manipulation. Leucorrhœa has persisted from the date of the protrusion. The catamenia occur every month, but the discharge is excessive and lasts for seven days. Micturition is difficult when the uterus is down. She received a severe blow on the vulva when a child, and lost much blood from the injury; has had no other illness. On examination, Mr. Brown found that the uterus, vagina, and bladder protruded completely, the uterus being larger than natural, and the os much ulcerated.—March 5th. The patient having been placed under chloroform, and the uterus returned, the usual operation of taking out pieces from the sides of the vagina in the situation of the labia minora, and of denuding the posterior part of the vagina and elongating the perinæum, was performed. The usual after-

treatment was followed up, and late in the evening of the 7th deep sutures were removed. On the 9th, the bent catheter was removed, and the urine ordered to be drawn off every three hours, in the ordinary way, and the interrupted sutures were also removed. From this date the patient steadily progressed towards recovery, and, seven weeks after the operation, was discharged from the hospital completely cured. Mr. Brown related this case as being one of unusual interest, from the fact that she was only twenty-one, and had never aborted or borne children. Mr. Brown observed that no consideration of inconvenience in any future child-bearing would influence his opinion as to the propriety of operating, because her sufferings were so severe as to prevent her from earning her living by her usual occupation.

Dr. ROGERS exhibited the

HEART OF A MAN WHO HAD DIED FROM PERICARDITIS.

The pericardium was bound to the heart on the anterior surface. The patient had been a soldier in India, and suffered from chronic disease of the heart previous to the occurrence of the acute symptoms. Dr. Rogers brought the specimen before the Society mainly because the right side of the heart was filled with a firm fibrinous concretion, which lay between the two currents of the inferior and superior cavæ, sent prolongations into these vessels, passed in the course of the circulation round into the pulmonary artery, and was firmly attached to the surface of the heart in the right auricle. The concretion was peculiarly tenacious, had evidently formed before death, and accounted fully for the symptoms pre-existent to death. The case confirmed strikingly Dr. Richardson's views as to the formation and diagnosis of these concretions.

ANTIMONIAL POISONING.

Dr. RICHARDSON then read a paper on Antimonial Poisoning, which will be found at page 156 of the present number of *THE LANCET*. The paper was illustrated by numerous specimens of antimony, removed from the viscera of the animals experimented on; and two animals destroyed by antimony were placed before the fellows, to illustrate the pathological appearances. The paper created great interest.

Dr. O. WARD requested the author to look closely for the appearance of ulceration in the alimentary canal. Bouillaud had observed pustules in the canal in the human subject, in a case where antimony had been employed as a medicine.

Mr. ROGERS HARRISON remarked on the large doses which Rasori prescribed. Antimony was used to fatten pigs. He should wish the author, in his researches, to experiment upon other animals besides dogs.

Dr. WEBSTER spoke of the experiments of Orfila, which showed that ligature of the œsophagus hastened the fatal effects in cases where the poison had been injected into the jugular vein. He also referred to section of the pneumogastric

nerves in cases of antimonial poisoning. Dr. Webster had seen very large doses given to the human subject. Hoffman had found ulceration of the stomach and gangrene of the lungs in a case of death from antimony. A leading point to ascertain was, how long antimony was retained in the body after it had ceased to be administered. Orfila had referred to cases in which it was detected four months after the cessation of such administration.

Dr. ROGERS inquired if the urine was found to contain antimony in the author's experiments.

Dr. RICHARDSON.—Yes, in large quantities.

He (Dr. Rogers) asked this because the administration of diuretics with antimony had been found to cause its more free elimination from the system. Antimony seemed to excite an inflammatory state of the blood. He had given quarter-grain doses to children, often repeated, without mischievous results. He thought that dogs were more susceptible than men to this substance.

Dr. SNOW thought that dogs were not more susceptible than men, and that the author of the paper was strictly correct in supposing that experiments on dogs afforded a safe basis of inquiry as to the effects that would be produced on man. The size of the animal must always be considered in relation to the action of medicines on its system, and it was not to be expected that a dog weighing fourteen pounds would tolerate so much as a man. When large doses of antimony had been given without injury, the escape arose from the fact that the poison was at once returned in vomiting. A dog would bear a drachm dose, if it were made to swallow it, and were permitted to vomit freely afterwards.

Mr. MILTON spoke of several cases, in which he had given antimony in free and repeated doses, for a long period, without injurious results. These were all inflammatory cases.

Dr. THUDICHUM gave the particulars of an experiment, in which he and Dr. Barker had injected one scruple of tartar emetic into the jugular vein. The blood was rendered of a bright-red colour, and in a quarter of an hour blood returning from the head through the jugular had assumed this colour, showing that by this time some of the poison had made the round of the circulation. The pupil was widely dilated. The respirations outlived the circulation. He considered antimony a dangerous medicine.

Dr. AYRES inquired into the condition of the mucus in the alimentary canal. The rigid mode of inquiry pursued by Dr. Richardson was the only form of research that could give correct information as to the action of medicines.

Dr. E. SMITH, in reference to a remark by Dr. Snow as to the skin in cases of phthisis, suggested that such depression might arise from the irritation and pain that was set up, rather than from the absorption of the agent.

The author having replied, the Society adjourned.

NORTH LONDON MEDICAL SOCIETY.

MR. PARK IN THE CHAIR.

MR. NORMAN read a paper

ON THE USE OF CUBEBS IN THE TREATMENT OF GONORRHOEA.

The author first referred to the causes which led to the disuse of really valuable remedies, as being—first, an undeserved reputation; secondly, adulteration; thirdly, improper or unskilful use; fourthly, indiscriminate use as to the true causes of failure; and lastly, an unwholesome love of novelty on the part of the practitioners. The cubebs Mr. Norman considered to be one of those remedies neglected or used without sufficient confidence by the profession, but still greatly used by prescribing druggists and by the public at large, and with great advantage. Referring, then, to the opinions and practice prevalent at the early part of this century in regard to gonorrhoea, which was then generally held to be a true syphilitic disease, capable of producing “a lues,” and safely treated only by the free use of mercury, and by Mr. Hunter deemed to be quite incurable by any medical treatment, he gave a sketch of the first introduction of the cubebs into Java from Bengal, and from Java into Great Britain, as recorded in the papers by Mr. Craufurd and Mr. Adams in the *Edinburgh Medical and Surgical Journal* in 1818, the *London Medical Repository* of the following year, and in a memoir by Mr. Jeffereys in 1821. The claims which it presented to confidence in the treatment of recent gonorrhoea, the author deemed to be well founded then, and to be equally deserved now, though perhaps at that time experience had not been sufficient to prove what the medicine could not do, and what aids it required to become in all cases tolerable, and to produce its fullest effects. These were to be obtained without almost any help but regular living and moderate care on the part of robust healthy men; but in irritable and weak habits the stomach was much disturbed by the remedy if given in adequate doses, and the sufferings produced by the disease in such persons rendered the use of sedatives and other remedies necessary. Some suggestions were thrown out for the use of such means; for the remedy under discussion a very high rank was claimed, and its failures to effect now and in other hands what it produced in the hands of those who first used it in this country were attributed to the medicine being given at an unsuitable stage of the disease, in too small doses, of bad quality, or without adequate precautions in particular instances. The medicine was not deemed by the author to deserve the discredit of producing swelled testicle, which had always occurred occasionally under all varieties of treatment, which in turn had to bear the blame of the accident. It was maintained to be the best single remedy possessed for the treatment of recent gonorrhoea; where it did not cure it gave relief; and prepared a case most expeditiously, safely, and agreeably, for its cure being com-

pleted by other means. Mr. Norman took a cursory review of the relation and special value of copaiba, the combination of copaiba and cubebs, injections, blisters, &c., in the latter stages of the disease, and made some suggestions for the cure of very protracted cases by discontinuing all treatment, and bringing about, by exercise and other means, a return of acute symptoms, which often yielded speedily to the treatment which at first had failed.

Mr. MILTON thought the use of cubebs was open to the same objections as many of the specifics. The author admitted that it would not cure the more severe or old cases, and that its use was apt to be followed by swelled testicle. Now, the treatment by alkalies, purgatives, and mild injections, was adapted to every form, and would cure almost any case if not complicated with perineal abscess. Swelled testicle scarcely ever followed this treatment—a great advantage, as, if severe, the testicle was seldom completely restored, particularly if the antiphlogistic method were adopted, to its former healthy state.

Mr. SQUIRE spoke to the efficiency of cubebs, and insisted upon the importance of obtaining the drug in a state of perfection.

Dr. RUSSEL REYNOLDS brought forward

CASES ILLUSTRATING THE RATIONAL TREATMENT OF EPILEPSY.

Rational treatment is distinguished from two other kinds—viz., the empirical, or non-rational, and the *a priori*, or falsely rational. It consists of the application deductively to particular cases, of inductively acquired knowledge of the disease in general, and of remedies in general. The measure of success attending treatment is, in the long run, the measure of its rationality; for such application to particular cases is the experiment by which we may test the correctness or incorrectness of our interpretation of phenomena, both of disease and medication. This is, however, true only when we have attained to an accurate measure of success. The so-called accidental cures are not accidental, but are dependent upon undiscovered laws; neither are they exceptional, for there are no exceptions to natural laws; but there are few laws so accurately comprehended in the sciences of pathology and therapeutics, that we can announce them without the aid of percentages, averages, and means. The latter are, then, numerical expressions, not of the whole truth, but of such fractions of the truth as we are for the time being able to perceive. These numerical expressions are means which we may employ in the search after truth; they are not the end of scientific investigation. It is not the object of this paper to present numerical results, but to indicate certain broad, general truths ascertained with regard to epilepsy and epileptics, which may serve as the guides towards a rational employment of those agencies which lie within our reach. There are three steps in the process by which we arrive at a rational treatment of a disease. They are—1st, the appreciation, as far as possible, of the real nature of the disease; 2ndly,

the recognition of the general effects of the different courses or modes of treatment; and 3dly, the application of particular remedies to particular cases. Upon each of these steps it is proposed to offer comments.

I. The appreciation of the real nature of the disease in question. It is not intended to assert that we have arrived at a knowledge of the ultimate essence of the malady; but we may recognise its phenomena; and not leaving these as an unsifted heap of pathological facts, we may, by their partial interpretation, reduce them to their "lowest terms." In epilepsy, the three modes or phases of life present some more or less notable modifications. Thus, there are symptoms referrible to the mind, to the motor apparatus, and to organic life, and we may therefore class them into mental, animal, and vegetal. Regarding the epileptic not merely during the accession of a fit, but in the inter-paroxysmal period, we may state the prominent features of his disease to be the following—1st, deficiency of will; 2ndly, excessive susceptibility to the induction of involuntary movements; 3dly, an altered condition of the organic processes.

1. Deficiency of will, exhibiting itself in the absence of due control over thought, emotion, and simple sensation, and reflective movement. As it has been argued at another time, this diminution of will produces, phenomenally, loss of both apprehension and memory, alternating or co-existing with a vague, wandering condition of mind, which, under accidental circumstances of excitement, may display itself in delirium. The emotions are easily disturbed; they exert an undue influence upon the inner and outer life; their expression is uncontrolled; delusive ideas are not unfrequently entertained; sudden impressions upon the senses startle the patient, unnerve him, and make him tremble; he is not master of himself; and all these morbid conditions are but illustrations of a deficiency of will which reaches its maximum,—viz. the complete extinction of volition, in the unconsciousness of the attack.

2. Excessive susceptibility to the induction of involuntary movement is evident during the attacks from the spasms which are then present; but during the intervals of seizure there are feebler but not less characteristic indications of the same tendency. Muscular agitation in the form of tremor, choreic spasm, or choreiform movements, occurs in 73 per cent.; and this exaggeration of motor activity we may confidently refer, as Dr. Marshall Hall long since pointed out, to the spinal centre. I say "confidently," for there is no evidence of increased muscular irritability on the one hand; nor, on the other, can we affirm, in the greater number of cases, the existence of any undue irritation. As examined by percussion and the galvanic current, the muscular irritability of epileptics I have found constantly below the average of health; and although we may often refer the commencement of attacks and their recurrence to indigestion, loaded intestines, disturbed emotions, and so forth, these irritations ought not to

be considered the efficient causes of epilepsy or epileptic attacks, since they neither exceed in degree nor differ in kind from the irritations to which hundreds and thousands are daily exposed without suffering any such catastrophe as an epileptic fit. Failing, then, to find the source of this excessive motility in either the muscles themselves, or in the nature of the irritation, to which afferent nerves may be exposed, we must, *pro tempore* at all events, refer it to that which lies between the stimulus and the contraction—viz. the spinal centre; and in this centre we recognize an undue readiness or susceptibility of reflective action.

3. Altered or morbid conditions of the organic processes are found in many epileptics; but it may be most confidently asserted that there has not yet been pointed out any one condition which necessarily exists. Frequently there is organic debility; but this, so far as my experience extends, is by no means invariably present. Amongst seventy-one cases which were analyzed for the paper already referred to, there were no discoverable signs of debility in twenty-nine; it was notably marked in eleven only. The organic conditions vary indefinitely; but there is this, however, which is common to them all—viz. the existence of a *change* from the previous condition of the patient, or from that of health. The existence of such changes as those attendant upon detention, the commencement of puberty, or pregnancy, or of such as may belong to the condition of general anæmia and the like, cannot but exert a perturbing influence upon the nervous centres, which are placed in such intimate relation with the entire organism. The nature of such perturbation we may not understand, but we cannot question its existence, or doubt the importance of its treatment. But when there are structural lesions in the nervous centres themselves, or in their appendages, such as tumours of the brain or chronic meningitis,—and when there are positively morbid blood conditions, such as that of uræmia induced by Bright's disease, &c., &c.,—we do not, in my opinion, have to deal with epilepsy, but with epileptiform, or allied convulsions, dependent upon other and recognizable diseases.

II. The second step in arriving at a rational treatment of epileptics is taken by a recognition of the effects of different therapeutic agents, considered in their general application to the disease in question. If the interpretation already given of the prominent features of epilepsy is correct, there are three classes of objects to be attained. These are—1, the education or increase of volitional control; 2, the diminution of excessive susceptibility in the spinal centre; and 3, the correction or counteraction of what may be morbid in the organic system.

1. The education or increase of volitional control is to be attempted by two classes of means, having relation to the circumstances which have either caused, or served to maintain, the deficiency of will. The former class includes all those means which should educe that self-control which, through hereditary, constitutional, hygienic, or social con-

ditions, has undergone but an imperfect development; the latter embraces those agencies or modes of treatment which should screen the patient from such excitement or perturbation as may have succeeded in overmastering the will. If the mind and will are not duly exercised, they will waste; if they are overtaxed or overstrained, they will wear. We have to avoid these two extremes, enjoining judicious discipline and healthy educational exercise for the child that has been too fondly tended, and allowed to pass its time in indulged idleness at home; and enforcing absolute rest, or even entire seclusion from the worry of the stock exchange or the anxiety of professional life, when these have injuriously absorbed the thought and sapped the mental strength of the individual.

2. The diminution of excessive susceptibility in the spinal centre requires for its attainment two kinds of treatment—viz., the scrupulous avoidance of all sources of undue irritation, and the exhibition of such agents as shall diminish the amount of irritability already existing, such as hyoscyamus, and allied medicines.

3. The removal or correction of those morbid conditions which exist in the organic system cannot be too carefully or perseveringly attempted. For the attainment of this object, the guides are those which we have in regard of all other diseases, and they need no further notice here.

III. The application of particular remedies to particular cases forms the third step in the process of arriving at a rational treatment of epilepsy. In order to gain this end, we may divide epileptics into three classes, and the recognition of a particular case as belonging to one or another of these groups will mainly guide us in the direction of treatment. The three classes may be separated from each other by the predominance of those individuals who compose them of one or another of the three main features of the disease, as it exists during the interparoxysmal period. Thus, in the first, the mind is predominantly at fault; in the second, the most characteristic symptoms are those of exalted muscular activity; and in the third, there are the signs of an abnormal organic condition. Cases of epilepsy require treatment for each of the three groups of symptoms, but some require special attention in one direction, and others necessitate a different kind of management.

In illustration of these principles, the author read the records of nine cases of epilepsy, three belonging to each of these groups. Of these cases, the following is a brief summary:—

First Group.—CASE 1.—A young man, aged eighteen, epileptic for four years, subject to delusions and absence of mind, occasionally exhibiting great religious excitement, and much worried by an anxious profession, was completely cured, and has been well for three years; the treatment adopted being the entire removal from his harassing duties, the exhibition of saline aperients with hyoscyamus, and the enforcement of a rigid system of diet.

CASE 2.—A merchant, aged forty, epileptic and maniacal for some months at varying intervals;

the exciting cause of his malady being apparently domestic affliction and anxiety of different kinds. Completely cured by absolute seclusion from all circumstances of annoyance.

CASE 3.—A boy, aged fourteen, epileptic for three years, subject to delusions and fits of uncontrollable temper; doing nothing, at home, and systematically left to himself. Home discipline was enjoined, employment found for him, and the secretions attended to. During periods of excitement, sedatives were given in full doses. For twelve months, while under treatment, he was much improved, both as to frequency and severity of attacks; since that time he has been lost sight of.

Second Group.—CASE 4.—A young man, aged twenty, epileptic during four years, subject to violent spasmodic movements (without impairment of consciousness) in the intervals of the attacks. At the commencement of the attacks he was very stout and robust; he has recently become anæmic. Mercurial aperients, hyoscyamus, and iron were given internally, and blisters applied to the spinal region. The patient has been well for nearly two years.

CASE 5.—A young man, aged twenty, epileptic for twelve months. In the intervals of the attack apparently strong and well, but exhibiting chronic contractions of the muscles and slight tremor. Treated with oxide of zinc, and has had no fit for upwards of three years.

CASE 6.—A little girl, aged ten, with hereditary predisposition, has been epileptic for several months; is excessively irritable, and presents great restlessness of limbs both walking and sleeping. Prescribed oxide of zinc and hyoscyamus, with saline aperients and most rigid diet, and this with complete success hitherto, no attacks having occurred for many months.

Third Group.—CASE 7.—A boy, aged fifteen, presenting considerable organic disturbance, apparently in connexion with arrival at puberty; somewhat anæmic, and mind occasionally confused and excited. Epileptic attacks marked. After taking Gregory's powder at night, and the saccharized carbonate of iron in the day; for a few weeks, he has become, and has continued for three years, perfectly well.

CASE 8.—A journeyman, aged twenty-seven, epileptic for two years, anæmic, and presenting partial paralysis of one side of face and body; completely cured of paralysis and attacks by taking iron, with mercury, and regular aperients. Well for nearly three years.

CASE 9.—A little girl, aged ten, epileptic for three years, pale and anæmic, and undergoing second dentition. Open air exercise, aperients, and iron were prescribed, with occasional doses of hyoscyamus; and she has been free from attacks for twelve months.

Cases of epilepsy have to be carefully diagnosed from those of chronic meningitis, which sometimes simulate them very closely. In a paper read previously before this Society, the mode of establishing this diagnosis was pointed out, and the

successful treatment of most unpromising cases of chronic meningitis by small but long-continued doses of mercury was illustrated.

ROYAL MEDICAL AND CHIRURGICAL SOCIETY.

CÆSAR HAWKINS, Esq., F.R.C.S., PRESIDENT.

ON THE STRUCTURE AND NATURE OF THE SO-CALLED COLLOID CANCER. BY SEPTIMUS W. SIBLEY, Medical Registrar to the Middlesex Hospital.

(Communicated by J. M. ARNOTT, F.R.S.)

THIS paper was accompanied with many illustrations, and an analysis of nine cases of colloid cancer observed by the author, giving an account of the age, sex, history, progress, result, and post-mortem examination in each. It gave a very minute description of the structure and nature of the disease, more especially of the characters and development of the membranous stroma and its contents, both of which had been indicated, but not fully described, by previous authors. Having given a minute account of the mode of origin and development of colloid, with an examination of the question as to its relation to and association with cancer and tubercle, the author drew the conclusion, that, as far as could be judged from the cases detailed by him, colloid was a disease perfectly *sui generis*, neither of a cancerous nature, nor frequently associated with cancer, and concluded with advocating the propriety of the early removal of the disease when practicable, inasmuch as, if not radically cured by operation, there was abundant evidence that colloid was slow to return after excision.

Mr. HAWKINS inquired whether the tumours described in the paper did not bear a close resemblance to the solid contents of the cystic tumours of the breast, at an advanced period of the disease?

Mr. SIBLEY had examined several cases of cystic tumours, but they bore no resemblance to the colloid disease.

Mr. BALLARD inquired whether he understood the author rightly to say that he was unacquainted with any instance of colloid disease affecting the substance of the liver? Was the statement confined to secondary colloid? A case of primary colloid disease of the liver occurred in University College Hospital.

Mr. SIBLEY remarked that his observation was confined to secondary colloid, no instance of which he had seen when the liver or lungs were the seat of the disease.

Mr. CÆSAR HAWKINS referred to a case on which he had operated about fourteen times during the last twelve or fourteen years. It seemed to begin at cystic disease of the breast, and formed in all the structures of the part, the morbid growths varying in size very greatly. It could hardly be called either colloid or cystic, the diseases seemed to run into one another. He referred also to another instance of the disease, as large as the head,

that did not admit of removal. It involved the intercostal muscles.

Dr. OGIER WARD inquired whether the author had met with any cases of colloid disease complicated with tubercle?

CASE OF FRACTURE OF FOUR CERVICAL VERTEBRÆ, WITH DISLOCATION, PRODUCED BY SLIGHT AND UNUSUAL CAUSE, AND RESULTING IN IMMEDIATE DEATH; WITH NOTES OF A CASE OF FRACTURE OF THE OS CALCIS. BY GEORGE GREEN GASCOTEN, M.R.C.S., House-Surgeon to St. Mary's Hospital.

(Communicated by SPENCER SMITH, Hon. Sec.)

This paper was accompanied with the pathological preparation of the parts. The interest of the case lay in the great amount of injury produced by a slight cause. There was fracture of the posterior arch of the atlas, through the laminae of the second, third, and fourth cervical vertebræ, directly behind the articulating processes, completely separating them from their respective bodies, in addition to which the laminae of the third and fourth on the left side were comminuted. There was partial dislocation of the third vertebra forwards; the posterior atlo-axoid ligament was bruised, and in parts disorganized; the ligamentum subflavum was torn away from the second vertebra; there was effusion of blood into the areolar tissue between the bones and membranes of the cord from the first to the fifth vertebra inclusive; the posterior common ligament was much stretched with a longitudinal rupture of an inch in length, opposite the second and third vertebræ; while the cause producing all this amount of injury was the forcible twisting of the head a few times from side to side, the sufferer holding his head in a butting position, with his hat on, while his friend, who caused the mischief, forcibly rotated it by the aid of the brim. The author, who had taken great pains to convince himself that this account of the accident was the true one, gave a minute description of the relations of the bones of the spine when placed in the description described, and of his view of the cause and progressive stage of the injury, quoting in corroboration many sources of information, the case, however, being in its details quite a solitary one. The notes of the fractured os calcis, the author stated he was induced to lay before the Society, in consequence of the statement of eminent authorities, (Malgaigne and others,) to the effect that the calcaneum, when broken by direct violence, is always crushed, and that the fracture is always situated behind the astragalus; whereas, from the seat of the crepitus, and the deposit of callus after the injury, it was evident in this case that the anterior third of the bone was separated obliquely, from above downwards, from the posterior two-thirds—that is, that the fracture took place in front of the larger articulating facet for the astragalus.

Mr. URZ referred to the two causes of fracture of the calcaneum—viz., from direct violence, and from action of the muscles, and described the symptoms of the accident.

Mr. MOORE related a case of fracture of the os calcis, occurring to a man who, falling some distance, alighted on his heel. The fracture could not be detected until the knee was bent. With respect to the case of fracture of the spine, he enquired what was the condition of the other bones of the body. He thought there must either be some error in the history of the case, or some defect in the firmness of the bone, for such remarkable effects to take place from so slight a cause.

Mr. GASCOYEN replied, that the vertebrae, but no other bones of the body, were examined. The body was that of a finely-grown man, and there were no appearances of any unnatural thinness of the bone.

THE RESULTS OF SOME INQUIRIES INTO THE CONDITION OF THE DEAF AND DUMB. BY JOSEPH TOYNBEE, F.R.S., Aural Surgeon to St. Mary's Hospital, Consulting Aural Surgeon to the Asylum for the Deaf and Dumb, and Lecturer on Aural Surgery at St. Mary's Hospital Medical School.

This paper embraced the following points:—The diseases producing deaf-mutism; the condition of the ears in the deaf and dumb, as ascertained by examination during life; the condition of the ear in the deaf and dumb, as revealed by dissection; the amount of hearing possessed by children educated as deaf and dumb; the mode of examining a child supposed to be deaf and dumb; the medical treatment of the ears of the deaf and dumb. The facts adduced were the result of an analysis of the cases of 411 children examined in the asylum. That division of the paper which referred to the condition of the ear in deaf-mutes, as revealed by dissection, was illustrated with a minute description of four dissections made by the author, and by a tabular view of thirty-one others, made by various preceding observers.

Dr. WEBSTER inquired of the author of the paper if he had observed whether deaf-mutism were more common in males than females, as his (Dr. Webster's) experience led him to believe. The malady was more prevalent in hilly than in level countries. There were 10,314 deaf-mutes in England in 1851, or 1 in every 1738 of the population, the proportion in Scotland being 1 in 1340; in Berne, in Switzerland, there was 1 in 200; in England and Wales the males numbered 121 to 100 females. He believed deaf-mutes rarely lived beyond 60 years. Formerly deaf-mutes, when at the age of three years, were destroyed as monsters. He thought it probable that the wild men of the woods, many curious instances of whom had been related, were deaf-mutes, who had been deserted by their parents, and sought companionship amongst the lower animals. The malady was greatly promoted by the degeneration of the human species; it was hereditary, and intermarriages amongst deaf-mutes were therefore highly objectionable.

Dr. BABINGTON thought that the deaf-mutism was frequently associated with a scrofulous diathesis. He had known deaf-mutes intermarry, the

offspring being sometimes subjects of the same deficiencies, and sometimes entirely free from them. He had known them reach the age of seventy, but as their constitutions were generally weak, their lives were usually of short duration.

In reply to the President, Dr. BABINGTON remarked that the disease was not more prevalent in one class than another.

Mr. BRODHURST had observed malformation of the fauces in congenital cases.

Mr. MOORE thought that the morbid appearances in the ear, in some of the cases described, could not sufficiently account for deafness, and he asked if Mr. Toynbee had carried his examinations to the auditory nerve.

Dr. E. SMITH mentioned cases of three deaf-mutes in one family, all of whom lived beyond sixty years.

Dr. BABINGTON stated, that out of above 300 deaf-mutes at the asylum, forty were the offspring of marriages between first-cousins.

Mr. TOYNBEE replied, that as the asylum received only a certain number of boys and girls, and was always full, no reliable statistics could be obtained as to the comparative prevalence of this disease in the sexes. It often resulted from the marriage of cousins, and was occasionally ascribed to the fact of the pregnant mother seeing a deaf-mute. He himself knew an entire family of six or seven persons born deaf and dumb, neither of whose parents had seen a deaf-mute. He had not observed any malformation of the fauces. Persons living in valleys were more liable to this disease than those who lived in elevated places.

ON THE DIAGNOSIS OF CERTAIN FORMS OF INFECTING AND NON-INFECTING SYPHILITIC SORES. BY HENRY LEE, F.R.C.S., Surgeon to King's College and the Lock Hospitals.

The author observed that Jenner regarded a peculiar kind of inflammation to be essential to the production of the effects of the vaccine poison on the patient's constitution; and Willan made similar observations respecting the inoculation of the poison of small-pox. Unless the morbid process peculiar to each poison were gone through, although other constitutional effects might follow, yet that which constituted the peculiar action of the poison upon the patients would not. It was the same with respect to the syphilitic poison; the peculiar morbid process which indicated its introduction into the system was attended with inflammation of the adhesive character, as in the case of the cow-pox. The application of the syphilitic poison often gave rise to true suppuration in the inoculated part, but this was essentially a different morbid process to that by which the poison was introduced into the patient's system. Where a syphilitic sore at an early stage produced well-formed pus globules, that affection would not infect the patient's constitution; the virus from such a sore might be readily enough inoculated; much more certainly, indeed, than that from a genuine infecting sore. Inoculation, therefore, was no test of the necessity of treating a patient by mercury, since these suppurating sores,

most readily inoculable, were not, if left to themselves, followed by secondary symptoms. Induration the author regarded as affording no invariable evidence of the adhesive inflammation; for, in the first place, the product of the inflammatory action might be poured out upon the surface of the affected part without infiltrating its tissue, which was as true of the adhesive as of the suppurative inflammation, and in neither case would there be any induration of the inflamed part; and, in the second, the presence of induration gave no invariable indication of the nature of the inflammation which produced it. The sense of touch alone would not invariably indicate whether the effused lymph would remain such until absorbed, or whether, in fact, the inflammation was of the adhesive or suppurative character. The information which the sense of touch failed to give, the examination of the secretion from the infected part would often supply. Examined under the microscope, fresh from the different sores, the globules in the discharges would often appear very similar; but if acetic acid were added before examination, a clear distinction might be drawn between those cases in which true pus globules were formed and those in which they were not. When true pus globules were formed at an early period, and were not produced by artificial irritation, the author maintained that no constitutional syphilitic disease would result. The various points mentioned in the paper were illustrated by cases.

In answer to Mr. Pollock, Mr. LEE said that his experience was similar to that of M. Ricord—that when a sore gave rise to a suppurating bubo, it was not followed by secondary symptoms.

Mr. COOK was of a different opinion. He believed he had seen cases in which a suppurative sore, with more or less hardness, had been followed by a bubo, which had suppurated, and then by secondary symptoms.

REPORTS OF TWO CASES OF EXTENSIVE ABSORPTION OF THE BONES OF THE HEAD, FOLLOWED, IN ONE OF THEM, BY HERNIA CEREBRI. BY CHAS. H. HAWKINS, F.R.C.S., &c., President of the Society, and Surgeon to St. George's Hospital.

The first case narrated was one of scrofulous caries, in a young man aged twenty-four, in which, quite contrary to the usual chronic character of that disease, most extensive destruction of the bones and soft parts of the head took place in a very brief period. Within the space of ten weeks from the first sensation of pain over the lower part of the right parietal bone, more than half the cranium became affected on both surfaces, in some parts the bone being entirely absorbed, having large openings. The entire parietal bone, the right half of the occipital, the squamous and mastoid portions of the temporal bone, and a considerable part of the frontal, with a part of the greater wing of the sphenoid, were thus affected in the short period mentioned.

The second case related was that of a man, aged

thirty-six, who was admitted into St. George's Hospital, under the late Mr. Keate, Feb. 2nd, 1832, with a pulsating tumour, nearly five inches in diameter, on the upper and posterior part of the right side of the head. It was soft and elastic, with a well-defined boundary; in its centre a round fungus projected, through an opening in the scalp, of the size of a small walnut, in which pulsation was also evident, and the apex of it looked like layers of coagulated blood. On the opposite side of the head was a similar depression, about three inches in circumference, which was soft and elastic, and pulsated strongly, the edges of the bone not being abrupt or well-marked round the aperture; and pulsation could also be felt in another smaller depression near this large one. He had lived freely, had been in tropical climates, had been twice salivated for syphilis, had a tendency to rheumatism, but otherwise enjoyed good health. Two years and a half before his admission, after sleeping on the grass in the sun, he suddenly felt acute pain in the head, which continued some days, and was followed after some time by a depression in the situation of the present tumour, of sufficient size to admit the end of the little finger. This depression increased in size during the next six months, and at length the tumour took its place. Eighteen months before his admission pulsation was first observed in the tumour; at that period the pain and general symptoms were so severe as to lay him up. Poultices were applied, and the tumour was punctured with a lancet, the effect being to let out a little blood simply. The puncture healed, and a month afterwards the same thing was repeated with the like result. Eight weeks previous to his admission, some severe head symptoms occurred, and after being bled from the arm, and having leeches applied to the tumour, it was again punctured, and from that time the present fungus began to protrude. On his admission, some difference of opinion existed as to the seat and nature of the tumour; it was twice ligatured. On the twenty-fifth day after his admission, numbness of the extremities and dimness of sight came on, with giddiness and sickness; on the thirty-third day the left side was more or less paralysed; on the thirty-ninth, completely so, and the sphincters were relaxed; on the forty-third he was comatose, and died on the forty-seventh. Examination after death showed the anterior part of the calvarium to be much thickened, in some places to the extent of half an inch, and the bony tissue being firm and dense, like ivory, the diploe being obliterated; while towards the posterior parts of the head the bones were very thin and presented large apertures, where, during life, pulsation could be readily felt. The external surface of these bones was rough and mammillated, and the internal more porous than natural. The dura mater adhered completely to the integuments around the opening in the scalp, and the arachnoid and pia mater were also adherent to the inner surface of the former. An opening conducted from the centre of the fungus into a large abscess in the right hemisphere, almost as deep as the lateral

ventricle; this abscess had discharged itself during life. It was evident that the disease commenced in the bone, and not in the brain, from the fact that the depressions preceded the protrusion, from the extensive disease of the bones in other parts, and from the fact that below the smaller apertures in which the pulsation of the brain was seen without protrusion, the dura mater and the brain were quite unchanged. The narration of the cases was accompanied with many valuable practical comments upon the rarity of these two affections, their modes of production, and, in the latter case especially, the probable nature of the exciting constitutional cause. The communication was illustrated by many pathological preparations of the parts involved.

REPORTS OF CASES OF COMPLETE CONSTIPATION WITHOUT MECHANICAL OBSTRUCTION IN THE INTESTINAL CANAL. BY T. A. BARKER, M.D., F.R.C.P. Senior Physician to St. Thomas's Hospital.

The author commenced his paper by stating that the cases he proposed to narrate afforded illustration of the fact that prolonged and complete constipation may exist without any mechanical obstruction, or least long after such obstruction, if ever present, had been removed.

The cases which he detailed were three in number. The first occurred in a baker, twenty-four years of age, who had been subject to frequent attacks of constipation, continuing for many days and even weeks. When admitted into St. Thomas's Hospital he had passed no fecal evacuation for six weeks; yet neither on this nor on any former occasion had he ever had any symptoms of ileus. For various reasons it was inferred that he had no material mechanical obstruction, and it was therefore determined to try the effects of mild purgatives and enemata, which had before proved successful. After about ten days the treatment entirely removed the constipation, but the bowels afterwards became relaxed, and the patient omitted to take the medicines ordered to relieve this state; the diarrhoea therefore continued, and he died about three weeks after the removal of the constipation. On examination after death, at about three inches above the anus the rectum became greatly dilated, and this continued throughout the whole length of the colon, but especially in the sigmoid flexure. The mucous coat was extensively ulcerated, and at the arch the intestinal coats were perforated. The muscular coat was throughout much hypertrophied, and the peritoneum was inflamed, and lymph was effused into its cavity. The second case was that of a female child, aged eight years, also a patient at St. Thomas's Hospital. It had laboured under constipation for a fortnight or three weeks, and frequently before for long periods. There were no marked symptoms of constitutional disturbance. During the time the child was under observation, she was treated by purgatives and enemata, but no satisfactory evacuations were obtained, and she died, gradually exhausted, in about three weeks

after admission. After death, the alimentary canal, and more particularly the large intestine, were found greatly distended by dark fecal matter. This was of a stony hardness in the rectum, but softer above. The coats of the intestine were healthy, and the muscular coat greatly hypertrophied. The author remarked that in neither of these cases was any evidence of obstruction detected after death, to explain the constipation which had existed during life, the lower part of the rectum being in each of them quite healthy. In the last, however, it might be supposed the constipation was due to long-continued neglect of the state of the bowels, rendering the most judicious treatment at length of no avail; but in the former, no reason could be assigned for the constipation. In the third case, he suggested that there had probably, at some former period, been a mechanical obstacle, but that had ceased before death, though the constipation continued. In this instance there were symptoms of ileus; the small intestine was found greatly distended with fecal matter, the colon contracted, and the ilio-cæcal valve quite destroyed by ulceration. The author further alluded to cases described by Dr. Abercrombie, in which fatal ileus had existed without any mechanical obstacle, and to cases which he had himself seen which showed that small and limited adhesions of the intestines, which did not mechanically obstruct the canal, might yet create fatal obstacles to the passage of fecal matter; while, on the other hand, extensive false membrane, binding all the intestines together, might be unproductive of any serious impediment.

ON AN UNUSUAL AND OBSTINATE FORM OF SWELLING. BY MR. J. L. MILTON.

(Communicated by MR. SIMON.)

The author (who described his own case) had long suffered from eczema of the scalp, to which, in June, 1855, were added most severe colicky pains and neuralgia of the face. For this complication of maladies, the inhalation of chloroform was frequently used, combined with quinine, steel, croton oil, and galbanum internally, and the application of counter irritants, and a strong astringent lotion, containing a large amount of hydrocyanic acid and zinc, externally. Under this treatment the neuralgia disappeared, whilst the eczema was slightly remedied. One morning in September, 1855, a large pyriform swelling, firm and painless, of the colour of the skin, was observed, extending from the inner to the outer side of the left thigh, just below Poupert's ligament. It had disappeared before night. On the following morning, a swelling five or six inches in length by two in breadth, of the same character in every respect, save that it was red, appeared just below the crest of the left ilium; this travelled slowly down the left side of the sacrum, and then across to the right side of the pelvis, where it gradually faded away in a few days; that portion of the tumour which had been first formed having, how-

ever, disappeared much earlier. For three weeks, similar tumours formed daily about the pelvis and thighs; sometimes three or four formed simultaneously; after that time they were more scattered and less frequent. About the end of October the face was first attacked; a hard swelling, which ran its course in about eight hours, passed slowly over both eyes, from right to left, completely excluding light when the attack was at its height. On the 11th of December, a most severe attack occurred in the face, the mouth and parts about it being the first seat of the swelling. Three times the throat was affected, the swelling reaching its maximum in that situation in half an hour, and giving rise to great alarm from the interference with respiration. One or two appeared at different times on the legs and arms. The number and severity of the attacks steadily declined from the last-named date, and finally disappeared in the March following. The swellings were never painful, nor did they yield, though firmly pressed. Stiffness and distension were the only sensations remarked in connection with them, the integument over them being generally raised half an inch and unaltered in colour. No desquamation or itching followed their subsidence, nor did any constitutional disturbance accompany either their outbreak or decline; the eczematous eruption was neither aggravated nor improved by their appearance; they never formed in the afternoon or evening, all which were noticed having commenced between four and ten o'clock A.M.; and, with one exception, all reached their utmost height in four hours. Those on the face were generally a week in subsiding; the others disappeared almost as rapidly as they arose. Colchicum and bichloride of mercury appeared to hasten the disappearance of the affection, of which the author, after diligent search, could discover no previous description.

Dr. WEBSTER said he had known such affections result, especially in hot climates, from the drinking of cold liquids on an empty stomach when a person was warm.

Mr. MILTON did not think his attack could have been thus occasioned, the eczema having continued during the spring and early part of the summer, when the weather was unusually cold for the season of the year.

Dr. STEWART asked if the author was subject to rheumatism, or whether a rheumatic diathesis was observable in his family. He had lately seen several cases in which very analogous forms of skin disease had been the precursors by some days of rheumatic attacks. He had seen erythema marginatum and also some forms of purpura accompanying rheumatism; eczema was often the manifestation of gout, and could only be cured by colchicum.

Mr. MILTON stated that gout was hereditary in his family.

Dr. ROBERT TAYLOR said that a few years ago he had a case somewhat similar to that mentioned by the author, in the person of a young gentleman, all of whose family were subject to gout. The swelling appeared principally in the arms. It

disappeared in about a year. He (Mr. Taylor) recommended colchicum.

REPORTS OF CASES OF PURPURA HÆMORRHAGICA, FROM FRIGHT. BY T. OGIER WARD, M.D.

The author stated that his object in bringing these cases forward was to show that this affection, which is usually the result of long-continued depression of the vital powers, may be produced in the course of a few hours, by a violent mental shock.

The first case related was that of a child four years of age, which was extremely alarmed by having been corrected at school. Three days after, without any other assignable cause except the alarm so created, the child had an eruption of petechial spots, which spread over all parts of the body and limbs, and in seven days after it died of a sudden attack of convulsions, terminating in coma, and dependent on the effusion of blood into the cerebral hemispheres.

The second case was that of a boy, who when walking in the fields, was attacked by a horse, and fell but did not appear to have sustained any material injury. He was extremely alarmed, and on his return home his nostril began to bleed, and, when undressed at night he was found to be covered with numerous larger and smaller purple spots and patches. He passed a restless night, crying during sleep about the horse, and the following day had febrile symptoms, with engorgement of the liver, and passed blood by stool. He recovered after an illness of about a fortnight's duration.

The third case was quoted from a lecture by Dr. Seymour, published in the *Medical Gazette*.

The author concludes his communication with some remarks upon the probable cause of the sudden change in the condition of the blood, in cases of this description, and he concluded that the affection was more likely to occur in children and females, from the smaller proportion of solid materials which their blood ordinarily contains.

In answer to the president, Dr. Ward stated, that in the case of the little girl he did not think that extravasation was caused by a blow on the head. She appeared to suffer more from fright than from the severity of the punishment.

Dr. STEWART said the hæmorrhage into the brain might occur to some extent independently of direct injury. He remembered a case of death from purpura, in an adult, in which, after death, the effusion into the brain was found to be excessive; the septum of the ventricle was broken down, and the central portion of the brain filled with enormous clots of blood.

Mr. HENRY LEE mentioned the case of a child who had broken its leg and shortly afterwards died. There was considerable extravasation of blood in the liver, and also about forty small extravasations under the skin. These, he thought, might be the result of some injury, but on examination he found that the effusion was in the cellular tissue under the skin. He was unable to account for these extravasations, but he thought they bore some analogy to the case mentioned by Dr. Ward.

TWO CASES OF MALFORMATION OF THE HEART.

BY HANNOTTE VERNON, M.D.

(Communicated by SPENCER SMITH, M.D., Hon. Sec.)

The first of these cases was that of a child, which exhibited hardly any indications of life for several minutes after birth. It ultimately respired freely, but gradually became blue, and about an hour after birth relapsed into its usual feebleness; the pulse became weaker, slower, and intermittent, and two murmurs, corresponding with the first and second sounds of the heart, were heard. The child died four hours and a half after birth, having been previously convulsed. On examination, the septum of the auricles was found imperforate, there being only an oval depression in the site of the foramen ovale. The tricuspid valve was incompetent, forming only a festooned diaphragm between the auricle and ventricle. The right ventricle gave origin to two vessels—one the pulmonary artery, which had no communication with the aorta; the other the aorta itself, and the septum of the ventricles was deficient at the base. The pulmonary artery was smaller in calibre than usual. The left auricle was small, and the lungs very imperfectly inflated. The author remarked that the peculiarity of the circulation before birth in this case was, that in consequence of the imperforation of the septum of the auricles, the head and upper extremities received blood of similar quality to that transmitted to the trunk and lower extremities. After birth there were—1st, regurgitation from tricuspid incompetency; 2ndly, admixture in the aorta of venous and arterial blood, from imperfection of the septum ventriculorum; and 3dly, deficient supply of blood to the lungs, from narrowing of the pulmonary artery and propulsion of venous blood into the aorta.

CASE 2.—In this case the child died eight days after birth. After having presented nothing unusual, it was suddenly seized with difficulty of breathing, became livid, and died convulsed. The septum of the auricles was found to be very imperfect. The left auricle was very small, received only two pulmonary veins, and had no communication with any other cavity than the right auricle, to which indeed it formed a mere diverticulum. The ventricular portion of the heart was single, and did not present any appearance of a septum. It gave origin to a single vessel, much larger than the aorta generally, from which two pulmonary branches were first given off. At the commencement of the arch a third vessel arose, which shortly divided into the innominate and left carotid and subclavian arteries. The aorta then pursued its usual course. A small vessel arose from the innominate artery, which, after proceeding some distance towards the heart, became imperforate. The lungs were very imperfectly expanded. The author remarked that the course of the circulation before and after birth would appear in this case to have been the same. In consequence of the non-communication of the left auricle with the ventricular cavity, the right auricle was the reci-

ipient of aerated blood, whether from the lungs or placenta. From this cavity the blood passed into the general ventricle, and thence through the general aorta. The pulmonary arteries were wholly inadequate to transmit a sufficient quantity of blood to the lungs, and, indeed, after birth a small proportion only of the blood became aerated. The author remarked on the rarity of malformations of the kinds of which these cases afford examples, and concluded his paper with some observations—1st, on the connexion between malformations of the heart and an atelectasic condition of the lungs; 2ndly, on the mode of death in cases of malformation of the heart; and 3rdly, on the relation of cardiac abnormalities and cyanosis.

EPIDEMIOLOGICAL SOCIETY.

DR. BABINGTON, PRESIDENT, IN THE CHAIR.

AN elaborate paper, by ALEX. KEITH JOHNSTON, F.R.S.E.,

ON THE GEOGRAPHICAL DISTRIBUTION OF HEALTH AND DISEASE, IN CONNEXION CHIEFLY WITH NATURAL PHENOMENA,

was read by Dr. M'WILLIAM.

The subjects of this important communication were illustrated by a large and beautifully-coloured map, upon which were delineated the various groups of diseases prevailing in the different portions of the globe, the region of each group being marked by its particular colouring. The map also exhibited equal annual, summer and winter, isothermal lines; lines pointing out the march of cholera from east to west; lines indicating the foreign stations of the British navy; the zones of diet; diagrams showing the proportion of deaths from consumption in different quarters of the globe; the attacks of rheumatism amongst the troops on different stations; and the comparative value of human life in different countries and in cities and towns. The map, and the paper in a more extended form, will appear in a forthcoming edition of Mr. Keith Johnston's "Physical Atlas."

The author commences by observing, that in the investigation of the extent to which the human family is affected in the enjoyment of health, and the preservation of life, by physical and natural causes, statistics form the safest guides in the accumulated stores of carefully-observed and accurately-recorded facts, regarding the occurrence of disease in its different forms, its extension or limitation in space, and the periodicity of its recurrence. But reliable tables of sickness and mortality do not exist, except for very limited and widely-separated portions of the globe. In the absence of positive data, however, a knowledge of the physical conformation of the earth's surface, and the meteorological agencies to which it is exposed, affords, through comparison of well-known phenomena in long-settled countries, a means of arriving at certain probable conclusions regarding others of which little or nothing is known. After briefly noticing

the object of medical geography, the author shows that similarity of geological formation indicates a similarity in the diseases of a country, and that a certain amount of heat, and a sufficient time for its manifestation, is necessary for the development of certain maladies. In the West Indies, for instance, the period of disease follows the course of the sun, the unhealthy seasons occurring at opposite times on the northern and southern sides of the equator. As the sun proceeds northwards in the ecliptic, so the sickly season advances from the southern to the northern islands. In the Mediterranean the mortality is doubled in the hot season, between July and October; and in the southern States of North America the posts of the army are regularly abandoned as the hot or sickly season approaches. But in the temperate regions the order is reversed. Throughout Europe generally the maximum mortality occurs at the end of winter, and the minimum in the middle of summer. After dwelling for some time on the influence of winds, elevation above the sea level, temperature, moisture, and electricity, upon health, the author proceeds to illustrate the great object of his paper by the aid of a map, upon an extended scale, upon which the distribution of disease over the various regions of the globe is clearly and intelligibly laid down. With a view to demonstrate that regions of disease correspond with seasons and zones of climate, Mr. Keith Johnston divides the surface of the globe into belts or zones, distinguished by great leading characteristics, as—1st. The torrid zone, or belt of greatest annual mean temperature, characterized by the class of diseases which includes *dysentery, yellow fever, diarrhoea, malarial fevers, and diseases of the liver*. This class of disorders depends essentially on heat and moisture as exciting causes, and therefore prevails in great intensity in the countries situated under the line of the greatest annual mean temperature. Its northern limit is probably the Bermudas, lat. 32° N. in the Atlantic, and California, 38° in the Pacific Ocean, in America. In Asia, it extends to near Pekin, lat. 40° N.; and in Europe, to the south of Spain. Its southern limits are: in America—Buenos Ayres, lat 34° S. in the Atlantic, and Kima, lat. 12° S. in the Pacific; in Asia, the southern limits includes Aracan, Ava, Ceylon, Borneo, and the other islands of the Asiatic Archipelago, and then to the northern shores of Australia; in Africa, it includes the island of Madagascar. Within these limits, the principal centres of these diseases are: in America—the shores of the Gulf of Mexico, the West India Islands, and the northern portion of South America; in Asia—India, China, and Ceylon, in Africa—the countries around the Gulf of Guinea on the west, Madagascar and Mozambique in the east, Algeria, and the shores and islands of the Mediterranean on the north. In the second or sub-torrid and temperate zone, inflammatory diseases represented by typhoid fevers are the characteristic maladies. In North America and Europe, the southern boundary of this group of diseases coincides generally with the northern boundary of the first class; in South America, it

probably includes Patagonia; in Africa, it includes the Cape Colony; and it embraces the South of Australia, Tasmania, and New Zealand. Its northern limit, in America, includes Nova Scotia and Newfoundland; and in Europe, the northern boundary includes the British Islands, Norway, and Sweden, to 60° N.; whence it follows a south-eastern direction, till it gradually declines towards the borders of Asiatic Russia. The third zone—or the sub-temperate, sub-Arctic, and Arctic zones, characteristic by catarrhs and colds—includes the whole of Europe to the north of the preceding class. In America it extends south to Boston and New York, including the district of the Canadian Lakes; thence it continues northward, nearly on the line of 41° mean annual temperature. Iceland is the best known locality of this zone, and may therefore be taken as its representative. This island is attacked by catarrh every year in spring, or early in summer. Influenza, which occasionally visits this island, has also a great influence on the mortality, attacking the whole of the inhabitants, and spreading, in an incredibly short space of time, over the whole island. Pallas says that the majority of Icelanders die, before the age of fifty, from asthmatic and catarrhal affections; and Crantz, that catarrh is very prevalent in Greenland. At Okhotsk, in Siberia, it is accompanied with difficulty of breathing; and a cough called "Ho" is endemic among the Samoeds. Mr. Johnston then enters, in a comprehensive manner, upon the subject of climatology, and diseases of different quarters of the globe, examining, with great skill, the maladies that infest the shores, the valleys, the mountainous districts, and the islands of each of its great divisions; he next gives a rapid but vivid sketch of the main epidemics by which mankind has, from time to time, been afflicted, tracing them from the regions of their birth to other countries into which they sometimes make inroads, and showing the modifications which they sometimes undergo in their progress. The author concludes by an interesting examination of the question, embracing the sickness and mortality among the soldiers and sailors, taking as his groundwork the statistical returns presented to Parliament by Colonel Tulloch and Dr. Balfour for the army, and by Dr. John Wilson and Dr. Bryson for the navy.

Dr. James Bird, Dr. Greenhouse, Dr. Babington, Dr. Waller Lewis, Dr. Camps, Dr. Snow, and Dr. McWilliam, took part in the discussion, and each gentleman highly eulogised the paper. The meeting was well attended, and amongst the visitors present, were some of the newly-created medical officers of health.

PATHOLOGICAL SOCIETY OF LONDON.

MR. ARNOTT, PRESIDENT, IN THE CHAIR.

MR. ATHOL JOHNSON exhibited a specimen of

CYSTIC DISEASE OF THE TESTIS,

removed by him from a child, aged two years and two months, at the Hospital for Children. The

testis was first seen to be enlarged when the child was three months old, but it was supposed to have been congenital. Its size increased slowly at first, and afterwards rapidly. At the time of the operation it measured seven inches in circumference. In other respects the child appeared healthy. On examination, the tumour presented an infinite number of cysts, varying in size, and containing a fluid transparent and gelatinous. Some of the cysts near the circumference were lined with pavement cells, but the majority had distinct ciliated epithelium. A large mass of bone, with lacunæ and canaliculi, occupied the fibrous structure between the cysts. There was no trace of cartilage cells.

MR. ERICHSEN read his report on Dr. Van der Byl's case of

EXTENSIVE PLUGGING OF THE ARTERIES.

The case appeared to be one of acute arteritis associated with endocarditis, and illustrates very strongly some points in the pathology of these affections, more especially with reference to the production of plastic matter within the arteries, as the result of their inflammation, and the consequence of a diffusion through, and accumulation in, different parts of the vascular system. In acute idiopathic arteritis, the plastic matter that is poured out by the inflamed part in the artery appears to be disposed in four different ways:—

1st. It may be deposited upon, and become adherent to, the lining membrane of that portion of the vessel which is inflamed. In such cases as these the artery will be found to be plugged up more or less completely by tough, leathery, buff-coloured fibrine, when it is so closely adherent to the lining membrane as to be stripped off with difficulty from it. The calibre of the artery itself will be contracted at this point, so that the contained plug is firmly embraced by it. (These appearances are well illustrated by the auxiliary artery in Dr. Van der Byl's case.) If the plug occupy a considerable portion of the vessel, and particularly if so situated in an artery of the extremities as to occlude the mouths of the chief collateral vessels of the limb, gangrene will not improbably ensue. If to as limited an extent as in Dr. Van der Byl's case, the interruption to the circulation will only be sufficient to cause coldness of the extremity, with deficient or absent pulse. In every instance of this kind that has fallen under the notice of Mr. Erichsen there has been, as in the case under notice, pains in the limbs, sometimes of an extremely severe character, and occasionally associated with an exquisite degree of cutaneous sensibility.

2nd. The plastic matter, not completely blocking up the artery at the point originally inflamed, may be washed down by the current of blood still passing across it into the lower portion of the vessel, and there accumulating in the form of a firm, maroon-coloured, cylindrical coagulum, may obstruct the terminal branches to such an extent as eventually to lead to gangrene of the limb. Between the two points so obstructed a portion of

the artery will usually be found to be pervious. It is, Mr. Erichsen believes, this obstruction of the artery at a second place, at some distance below the primary seat of disease, that causes arteritis so frequently to be followed by gangrene; the obstruction occasioned by the second or distal plug of lymph being so complete as to render it difficult for the circulation to be carried on with the requisite amount of vigour to maintain the vitality of the part. This appears to be the state of the femoral artery in Dr. Van der Byl's case, in which there is a plug composed of the ordinary buff-coloured fibrine, then an interval of healthy pervious artery, and then a portion of the vessel plugged up in the way already mentioned; but to what distance this secondary deposit extended it is impossible to say, as the vessels have been cut off short. Although existing to a sufficient extent to seriously impede the circulation, it was evidently, from the symptoms during life, not sufficient to arrest it entirely. The plug of lymph in the left middle cerebral artery appears to have been of the same kind, and the softening in the corresponding hemisphere of the brain to have been dependent on the obstruction of the vessel.

3rd. The plastic exudation that is poured out by the inflamed vessel may be washed by the current of the blood into the capillaries of organs beyond the seat of diseased arteries, especially the spleen and kidneys, and becoming arrested in the ultimate ramifications of the vascular system, accumulate in the form of light, buff coloured, or reddish-yellow fibrinous concretions. These may also form as the result of endocarditis, as has been especially pointed out by Hasse, and as the endocardium appears to have been inflamed in Dr. Van der Byl's case. Mr. Erichsen thinks it most probable that the yellowish-white fibrinous masses formed in the spleen, kidneys, and heart, proceeded from this direct source rather than from the more distant one of the inflamed arteries. The fibrinous concretions found in the substance of the heart itself probably resulted from the exudative matter carried directly from the interior of that organ, through the coronary arteries, and, so far as his observations go, was a frequent form of this deposit.

4th. Fibrinous concretions may form in large and distant venous trunks, as the result of arteritis, but as there is no evidence of its having occurred in Dr. Van der Byl's case, it is needless to pursue further this pathological condition.

DR. HILLIER exhibited

A CANCEROUS TUMOUR FROM THE BRAIN,

removed from a man, aged thirty-six. The history obtained of him is imperfect. He died in St. Pancras Infirmary, to which he had been admitted about three weeks before his death. When admitted he complained of headache and cold, for which he was ordered Dover's powder. Nothing indicative of paralysis was noted at the time. A few hours after taking the powder he was suffering from symptoms like those of opium poisoning, and means were employed to keep him awake. There

was no reason to suppose that more than ten grains of the powder had been administered. On recovery from this state he was found to possess little more power on the left side than on the right. He stated that he had never suffered from headaches. His intellect was dull, and he seemed half asleep constantly. His sight was not materially affected. His appetite was generally moderate. Whilst in the Infirmary, he had several comatose attacks, which lasted several hours, unattended with convulsions: at these times he could not be roused. He gradually lost power over his bladder and sphincter ani, and the feeling in both lower extremities was very deficient, though the power of motion was not very much affected. He died in a state of coma. On post-mortem examination, the tumour now exhibited to the Society was removed from the anterior lobe of the left hemisphere of the cerebrum, extending above nearly to the upper surface. It is about the size of a goose's egg, and is enclosed in a complete cyst. The membranes of the brain were finely injected, but the brain substance around the tumour did not appear much, if at all, altered in character. Microscopically, the tumour was found to consist of cancer-cells and nuclei of ordinary character, some of them undergoing fatty degeneration. There were a number of cells with nuclei and nucleoli, and numbers of so-called exudation corpuscles.

Dr. HILLIER also exhibited a specimen of

CIRRHOSIS OF THE LIVER, ACCOMPANIED WITH HÆMORRHAGE INTO THE STOMACH AND INTESTINES,

in a child, thirteen years of age, who had been from early life exposed to the weather and privation of all kinds. She suffered from ascites and occasional attacks of jaundice some few years back. Her breathing was habitually short, and her complexion of an earthy tint. There was no history of her having had rheumatism. Three days before death she was in her usual health, when she had a chilly sensation, and became drowsy. She passed a large quantity of urine; she did not complain of pain. The drowsiness continued, and she lost her appetite; the bowels acted several times. On the second day before her death she spat a few teaspoonfuls of blood, and on the day following she was admitted into University College Hospital. She was then in a very drowsy condition, but, when roused, was capable of putting out her tongue a short distance. It was brown and clammy. Her pupils were large, equally acting under the stimulus of light. She frequently uttered a low moaning sound, but could not speak. The skin was hot, of a sallow tint, and slightly jaundiced; the pulse was 124; respiration 36. The patient passed urine in quantities. She had purgative medicines, which operated freely, and blood was passed with the stools. She died the next morning. On post-mortem examination, the liver was found to be remarkably cirrhotic, being very nodular, presenting an appearance externally, something similar to the convolutions of a small brain. The lobules Spigelii

appeared to be in the hypertrophied stage, whilst the left lobe and part of the right had undergone contraction. The liver weighed twenty-six ounces. The stomach contained a large quantity of black coagulated blood, and the small intestines contained some also. The stomach exhibited a mammillated appearance to a very marked degree near the pylorus. There was no alteration of the stomach or of the intestines, except in a very small point of one of Peyer's patches, about an inch and a half from the ileo-cæcal valve. The rest of Peyer's patches were a little injected, but not elevated. The lungs were slightly emphysematous, and the right side of the heart was a little dilated; the mitral valve was thickened irregularly at the edges of the flaps, and the cordæ tendinæ shortened. The kidneys were not quite healthy. The spleen was large, weighing seventeen ounces. On section, the liver is seen to be made up of roundish lobes, subdivided into lobules; between these are thick partitions of cellular tissue. The nodular bodies vary in size from that of a good sized shot to that of a large bean; they are of an ochre colour, with but little vascularity, whilst the cellular partitions are of a light colour.

Mr. HUTCHINSON exhibited the parts involved in an

EXCISION OF THE KNEE-JOINT.

These had been taken from a case in which, in an excision of the joint, the femur had, on section, been found so much diseased as to necessitate amputation. The patient, a boy, aged nine, of delicate aspect, had been the subject of chronic disease of the right knee for four years. The first symptom had been aching pain, which slowly increased, and was, after some months, followed by swelling. For a year past the knee had been bent at an acute angle, with partial dislocation of the tibia outwards and backwards. Very little pain had ever been experienced, but there had been occasionally startings of the limb during sleep. Until within a month of the operation no abscess had ever broken externally. When placed under Mr. Hutchinson's care, the history given was, that for the last six months the joint had been getting much worse, and that the boy's health was failing. The parents were then willing that the limb should be removed—a measure which, when recommended by another surgeon a year ago had been refused. Believing the case a suitable one, Mr. Hutchinson advised an excision of the joint. In the performance of that operation the following condition of parts was found:—The articular cartilages were everywhere removed, and the opposed surfaces of bone, except where united by adhesions, were in a state of caries. There was a deep ulcer, extending into the patella, the cavity of which would have contained a filbert. In the left side of the head of the tibia was a cavity, into which, for a depth of half an inch, the first joint of the finger entered easily. The condyles of the femur having been sawn away, two patches of yellowish material, infiltrated into its cancellous tissue, were seen, and also the cavity of an ill-circumscribed collection of pus. A second

slice of the bone having been removed, a nearly similar condition of things was still found, a small abscess, lined by tough lymph, and capable of holding a small nut, having been opened. It was thus made evident that, unless by shortening the limb to an extent which would make it useless, it would be impracticable to cut away all the diseased bone, and amputation was accordingly decided on and performed. Mr. Hutchinson remarked, that the pathological interest of the specimens consisted in their showing several distinct abscesses in the bone, and in the circumstance that the existence of these had not been rendered probable by the severe pain usual in such disease. With regard to the operations, he believed that, although it had not been deemed wise to persevere with the excision, his patient had lost nothing whatever by the attempt made to save his limb. He had been, throughout its performance, in complete insensibility from chloroform, and within six hours afterwards was in as good a condition as he could possibly have been after amputation only.

Mr. HUTCHINSON also showed the parts removed in an

EXCISION OF THE ELBOW-JOINT.

The patient, a woman, aged fifty, under his care in the Metropolitan Free Hospital, had suffered from diseased elbow for one year. The history given was that of disease commencing in the synovial membrane. There had been stiffness and aching pain for some weeks before swelling commenced, and the latter had increased very gradually. At length abscesses formed, and the pain experienced became very severe and of a gnawing character. The woman was very much emaciated, pale, and worn down by suffering. At the time of the operation there was a single sinus at the back of the joint, which led into the articulation; great general swelling, both around the part and of the whole forearm. The T-shaped incision was adopted, and the extremities of the three bones sawn away. The cartilage was found ulcerated around its margin, on both ulna and humerus; an irregular patch, in the centre of the sigmoid cavity of the former, being also entirely denuded, and the bone exposed. The head of the radius was sound. The whole synovial membrane was very much thickened, and the joint contained much softening lymph, with a small quantity of pus. The patient had lost all pain since the operation; the swelling of the forearm had quite subsided, and she was doing well in every respect.

Dr. QUAIN exhibited, for Mr. Rae, of Greenwich Hospital, a specimen of

ANEURISM OF THE HEART.

Edward S—, aged seventy-five, seaman, was admitted into the infirmary on the 1st of August, 1855, for disease of the heart and bronchitis. When first seen, the heart's action was feeble and irregular, with a very loud bruit, obscuring both sounds, and heard over the whole chest, but loudest at the aortic cartilage and best at the left apex. Whilst under treatment he had frequent attacks of dyspnoea; he

was never, for many days, free from anasarca of the lower extremities; and at one time the peritoneal cavity was distended with serum. He died during a fit of dyspnoea, on the 14th of February, at half-past eight P.M. He had long suffered from cough, dyspnoea, and palpitation, and had periodic attacks of gout.

Autopsy twenty-two hours after death.—Body much emaciated. Lungs slightly emphysematous; posterior part of both much congested; bronchi congested and tumefied; old pleuritic adhesions on both sides. Liver fatty; its edges rounded. Spleen smaller than usual; greater part of capsule covered with a thick layer of hard fibrin. Kidneys granular; cortical structure of a light grey colour; capsule easily separated. Heart: pericardium contained about three ounces of serum. The organ, which was in a state of fatty degeneration, weighed thirty-one ounces. The aorta was extensively ossified; the aortic valves were incompetent. An aneurismal sac, the size of a walnut, was observed between the posterior wall of the left ventricle and the septum; it extended through the latter, forming a smaller secondary cyst in the wall of the right ventricle. From this point it extended downwards towards the apex of the right ventricle, where it seemed to open indirectly amongst the tubercles.

The specimen was chiefly interesting, in a pathological point of view, as illustrating the formation of cardiac aneurism.

Dr. QUAIN, for Dr. BLACK, of Chesterfield, exhibited a portion of bowel, and read the particulars of

A CASE OF ILEUS PRODUCED BY INVAGINATION OF A PORTION OF BOWEL, WHICH WAS SUBSEQUENTLY DISCHARGED BY STOOL.

A young man, aged eighteen, by trade a quarryman, in strong and robust health, was on the 25th of March, 1855, after having two hours previously partaken of a hearty meal of pork and baked pudding, seized with severe pains in the abdomen, which came on in paroxysms, shortly followed by vomiting. The symptoms continued increasing in severity, and medical advice was sought, when remedies were administered with the view of relaxing the bowels, which had not been relieved since the first occurrence of pain. For three days, purgative medicines by the mouth, with enemata, were administered without effect. The symptoms already existing were aggravated, to which were added those of hot skin, thirst, furred tongue, quick, hard, and wiry pulse, and stercoraceous vomiting. He was bled by leeches; fomentations and subsequently blistering were had recourse to. On the 29th, Dr. Black saw the patient for the first time, when he found all the symptoms of general peritonitis accompanying those of ileus present. The pain and tenderness were particularly marked in the neighbourhood of the ileo-cæcal valve. Up to this time, the bowels had not been relieved in the natural way. The treatment pursued had for its object the arrest of the existing inflammation. Effervescent medicines with hydrocyanic acid, and calomel with opium, were given every two

hours, whilst local depletion by leeches, followed by constant anodyne fomentations, and these ultimately followed by a repetition of blistering, were applied externally. During the four following days, the more urgent symptoms gradually subsided. By very careful manipulations of the abdomen, between the umbilicus and pubes, a distinct succussion was both felt and heard in the subjacent viscera in the right inguinal region. In no other part of the abdomen could this sensation be produced, nor could any tumour or isolated swelling be discovered. Here, then, was the seat of the obstruction. The symptoms greatly improved, the gums were tender, but there was no evacuation from the bowels. During the tenth and two following days, warm enemata were had recourse to; and it was not until the twelfth day that any feculent matter came away. Castor oil was now administered, when several scanty evacuations were produced, which were repeated daily until the nineteenth day, when, at intervals of several hours, the patient had three evacuations, one of which was seen by Dr. Black, and consisted of blood of a bright colour, from a pint to a pint and a half in quantity, and mingled with many pieces of what proved, on examination, to be portions of the small bowel, one of the largest of which was laid before the Society. Dr. Black was informed that the two other evacuations were of precisely the same character. The patient was pale and weak, and complained of considerable pain and soreness in the right iliac region. There being, in addition, a disposition to purge, opiates and astringents were had recourse to. Milk diet, with farinaceous food, was ordered. The patient was convalescent at the end of the sixth week. Dr. Black observes that the case is interesting in three particulars:—

1st. The nature and seat of the obstruction.

2nd. The mode in which the obstruction was produced.

3rd. The effect of the treatment adopted.

Having dwelt on each of these particulars, Dr. Black next observes: "For the occurrence of invagination in a bowel like the ileum, it seems to be requisite that there shall be paralysis of one portion of it, with at least normal peristaltic action of that portion immediately above the paralysed part." Paralysis, then, being one essential condition of such iliac invagination, how it is produced? Dr. Black says, in one of the following ways, viz.:—

1st. By a simple loss of innervation in some portion of the tube.

2nd. By a matting together of its muscular fibres, from inflammatory exudation, and by the consequent abolition of their contractile power.

3rd. By mechanical distension from within, owing to the presence of alvine concretions, &c.; or by such an amount of pressure externally to the gut, that the peristaltic action of the latter remains more or less abolished even after the removal of the exciting cause.

In support of the foregoing propositions, a very elaborate paper was read.

Dr. Bristowe read a report on

MR. BORLASE CHILD'S CASE OF TUMOUR IN THE LOWER EXTREMITY OF THE FEMUR,

and expressed a decided opinion that it was a myeloid growth; in which view Mr. W. Adams concurred. It consisted of several apparently distinct tissues:—1st, a shell of bone; 2nd, fibroid tissue; 3rd, myeloid tissue; 4th, an opaque, buff-coloured soft material; 5th, cyst. 1st, the bone appeared to be merely the remnant of that in which the tumour was developed. 2nd, Dr. Bristowe thought that the fibroid tissue was developed in connexion with the bone, and that it was, in fact, an abortive attempt at the formation of bone. 3rd, The myeloid tissue had all the characters that are assigned to it by Mr. Paget. 4th, The opaque buff-coloured material was evidently the degenerate condition of other tissues, partly of the fibroid, partly of the myeloid, and was very thickly studded with compound granule cells and free oil. 5th The cysts, for reasons which Dr. Bristowe gave at some length, he believed were, in the majority of instances, due to the absorption of clots.

Dr. BRISTOWE exhibited a specimen of

MYELOID TUMOUR OF THE HUMERUS.

The arm was removed from a young man, about two years ago, by Mr. Simon, and the history of the case has been already published. The tumour originated without any obvious cause, and had been forming for about six months at the time of its removal. It consisted partly of bone, partly of fibroid tissue, and partly of a soft pulpy material, which presented under the microscope large numbers of the cells peculiar to myeloid growths. These cells were very large, sent off numerous processes, which in some instances served to connect neighbouring cells, and contained large numbers of nuclei, occasionally upwards of seventy or eighty. The deltoid muscle was stretched over the tumour, and through the substance of the muscle, and over the substance of the tumour were scattered large tortuous veins, blocked up and distended by pulpy contents, which were proved to have precisely the same characters as the myeloid tissue of the tumour. At the operation, many of these veins were cut across, and their continuations were left in the flap. A considerable portion of the deltoid, however, subsequently sloughed; and as there was no return of the disease during the patient's stay in the hospital, which was six months or more, it was considered that all the affected veins had come away with the slough.

The interesting points in this case are,—first, the great size and beauty of the myeloid cells; and, secondly, the prolongation of the myeloid tissue into the veins. From the latter circumstance one would have been disposed to consider that had the disease been cancer it would have extended rapidly to some of the internal organs, and have speedily produced death. As, however, although the patient remained some months in the hospital, he rapidly improved in health, and manifested no sign or symptom of malignant disease, there was strong reason to believe that the disease was not extend-

ing, and hence that it was not malignant—a view which had been previously entertained from a consideration of its microscopic character.

Dr. BRISTOWE also exhibited a specimen of

TUMOUR IN THE PONS VAROLII.

The patient from whom the specimen was taken was a man under Dr. Barlow's care, thirty-three years of age, who for some months had been suffering from epilepsy, and latterly had become paralysed and comatose. The tumour was about the size of a pigeon's egg; and although it projected above the surface of the brain, its deeper parts became gradually blended with the brain substances in which it was imbedded. The chief interest lay in the microscopical character of the growth. It consisted of elongated cells of considerable size, which dwindled away at their extremities into cylindrical fibres. These fibres were in some parts distinctly hollow, and here and there presented fusiform enlargement; and it was distinctly seen, in some cases, that two, or even more, cells were connected by such fibres—occasionally the cells gave off three, or even four, fibres. The cells contained from one to three or four oval nuclei. Dr. Bristowe thought the growth of this tumour was very similar to that of myeloid tumour; that, in both cases, the cells constituting them had a tendency to branch, and the branches to enlarge into cells similar to those from which they originated; and that there are in both a tendency to the formation of many nuclei in the cells.

Mr. BRYANT exhibited a specimen of

SOFTENED ANCHYLOSIS OF THE KNEE-JOINT.

from a woman fifty-seven years of age, married and healthy-looking. Twenty-seven years ago, she fell on her left knee. No inconvenience followed for one month, when the joint became swollen and painful. These symptoms becoming worse, she was admitted into Guy's Hospital, under the late Mr. Key, with what was called hydrops articuli. The joint was then punctured with a trocar and canula, and a large quantity of synovia drawn off. Suppuration is said to have followed this operation, and after eighteen months stay in the hospital, she left for the Margate Infirmary, which she quitted in eighteen months with a stiff, useful limb. For twenty-two years following, the limb had been useful, the only inconvenience being that arising from a stiff joint. Some slight degree of mobility was said to have existed. Two years ago, she received an injury in the same knee; inflammation and suppuration followed, succeeded by disintegration of the joint. In this condition, she was admitted into Guy's Hospital, under the care of Mr. Hilton, who amputated the limb in January. On making a section of the joint in the recent specimen, the surfaces of the tibia and femur were excessively vascular, no signs of cartilage were visible, and the bones and muscles were found much degenerated. The patella was firmly ankylosed with the femur, and the

surfaces of the tibia and femur were intimately adapted to one another, the spicula of bones upon one surface corresponding most correctly with the depressions upon the other. The principal question of interest in this case is the form of ankylosis that existed. The long period of twenty-two years, during which perfect use of the stiffened limb was enjoyed, renders the opinion that bony ankylosis had taken place very probable; that such still exists with the patella, and the intimate adaptation of the ends of one bone to all the irregularities of the other, favours the same view. At the same time, the fact that some slight degree of mobility exists militates against such an opinion. At any rate, that the new product enjoyed less power of resistance to the inflammatory action is well proved, as the blow recently received proved quite sufficient to induce its degeneration and decay.

Dr. PEACOCK exhibited a specimen of

IMPACTED CALCULUS, WITH SACCULATED KIDNEY,

removed from a patient of his, a female, twenty years of age, who died of phthisis of upwards of three years' duration at the Hospital for Diseases of the Chest, Victoria Park. The patient was admitted into the hospital on the 2nd of November, and then presented evidences of extensive cavities in the left lung. After having resided about three weeks, she began to improve, and advanced steadily, gaining 6 lbs. in weight in nine weeks, till January 30th, when she was suddenly seized with symptoms of pneumonia, and died in twenty-eight hours. On examination after death, the condition of the lungs corresponded with the opinion formed during life. The left lung contained large cavities, lined by false membranes, and undergoing contraction, together with the cicatrices of healed cavities. There was also a small cavity in the apex of the right lung, and interspersed tubercle in other parts. At the lower part of the left lung there was slight red hepatization, and very extensive pneumonic consolidation of the lower part of the right; in each case lapsing, above, into simple engorgement. There was no intestinal or other disease, and the body was not much emaciated. The left kidney was found to be converted into a large multilocular sac, the parietes of some of the sacculi being entirely membranous and very thin, and the renal structure being everywhere almost entirely atrophied. The cause of this expansion of the pelvis and calyces was found to exist in a calculus, which was impacted in the pelvis, and must, apparently, have nearly, if not quite, have closed the entrance into the ureter. The calculus presented the usually dusky colour and scabrous surface of the oxalate of lime deposits, it consisting of a body and three projecting extremities, which protruded into the expanded calyces. At the end of one of these projections there was a small mass of

phosphatic deposit, which weighed a drachm and three-quarters avoirdupoise, when dried. The sacculi of the kidney were distended with a dark-coloured thin fluid. The ureter was throughout pervious. The right kidney was large and vascular, weighing six ounces and a half avoirdupoise. The existence of the disease in the kidney had not been suspected during life; but on inquiry afterwards, it was ascertained that she had occasionally complained of pain in the left iliac region, extending down to the groin, and an abscess had formed in the groin, which was opened and soon healed five years before. The urine was examined soon after her admission into the hospital, and was found quite healthy.

WESTERN MEDICAL AND SURGICAL SOCIETY.

DR. SEATON, V.P., IN THE CHAIR.

AFTER the nomination of the various officers for the ensuing session,

MR. LANE, JUN., exhibited a specimen of

IMPERFECT ANCHYLOSIS OF THE KNEE-JOINT.

It was taken from a patient who had recovered from the effects of severe inflammation of the knee-joint, and which had been attended with extensive suppuration, but who died from small-pox. After death, the patella was glued to the external condyle and the semilunar cartilages attached firmly to the tibia and to the femur; but at no point had the cartilages been sufficiently removed to expose the bone. This union, in the opinion of Mr. Lane, had arisen through the means of a medium formed out of plastic material effused from the synovial membrane, and organized, deriving its vessels from that membrane, and extending from it over the surface of the cartilage. This opinion was borne out by the appearance of the specimen, in which a soft morbid structure was effused between the articular surfaces, but which was so readily removed, as to show that its source was other than the cartilage. This substance would, probably, have become incorporated with the cartilage, which latter would have undergone a gradual conversion into a fibrous tissue, and so rendered the joint imperfect in the extent of its movement. Had the bones been denuded, the uniting medium would probably have been bone, as the nature of the new growth seems to depend upon the source of its growth. The case would possibly have had a favourable termination, more so than could have been expected from the amount of inflammation that was present in the early stages.

MR. DICKINSON exhibited an

OVUM, WITH ARREST OF DEVELOPMENT FROM FATTY DEGENERATION OF THE PLACENTA.

The ovum was one of twins, the other being perfectly developed, and born at the full period alive.

After the labour, the blighted ovum came away with the other placenta. The ovum was about four months; its skeleton could be traced, though it was much shrunken; the cord could not be detected, nor could the membranes be separated. The placenta was in a state of fatty degeneration, which state had caused the early death of the ovum. The interesting part of the case was its retention until the full period of gestation of its fellow, and might represent a case of superfetation.

DR. ARLIDGE then read a paper,

ON THE GENERAL PARALYSIS OF THE INSANE.

After alluding to the ignorance on this point that prevailed amongst the profession, and giving a short historical sketch of the literature of the disease, he noticed the four theories which are prevalent respecting it. The first is, that it is a simple termination of all varieties of insanity; the second, that it is a distinct and special form of insanity, characterized by proper physical and psychical symptoms, and anatomical lesions; the third, that it is a simple nervous lesion with or without mental disturbance; fourth, that there is a distinct variety of general paralysis, with, and another without, madness. The paralysis is general, incomplete, and progressive; it shows itself in parts requiring nicety of movement, as the lips and hands; the muscles regulating these parts generally betray the first symptoms of the existing lesion. It does not spread from part to part, but seizes on all at once, and advances very insidiously. There are four forms of it—the congestive, the paralytic, the melancholic, and the expansive, or agitated form. The congestive takes place by one or more attacks of cerebral congestion, and is attended with momentary unconsciousness and vertigo; loss of memory and delirium, either active or quiet, follow, and, in the end, imbecility. In the paralytic, the muscles generally become feeble, the hands unsteady, and there is difficult articulation; the lips and features tremble, and the legs falter; all these symptoms are aggravated by cold or accidental injury. The head soon suffers. The melancholic is rarely seen, though this state may occur in any of the other forms of the disease. The expansive is most common and is characterized by the patient becoming excited, and full of schemes, negligent of business, disturbed by notions of importance, or property; he may give himself up to sensual excesses. Acute mania may supervene but the mania will be characterized by ideas of grandeur, personal wealth, &c. However it begins, the patient sooner or later assumes a monomaniacal or a maniacal condition, or else falls into a state of dementia. Dementia is invariably the last stage of the disease, except accidental illness or epilepsy destroys the patient. The author then spoke of the importance of detecting the early symptoms, and alluded particularly to the failure of the muscles of the mouth, and of the hands and legs. If dementia be a prominent early symptom, the patient is apathetic, dull, melancholic,

with vacant, relaxed features; in short, there is a vacuity of mind, with spasmodic movements of the facial muscles, whenever the patient attempts to speak. All the symptoms may remit, but the case proceeds to its fatal catastrophe. Besides these remissions, intermissions sometimes take place, and last for some time, and may be so complete as to assume the appearance of a recovery, but sooner or later the disease will break out again. In the stage of dementia in which all cases terminate, there is utter helplessness, loss of power of the sphincters, inability to move, great debility, and tendency to bed-sores; but there is content, and happy thoughts of wealth and grandeur. In this stage, apoplectic and epileptiform fits occur, each aggravating the condition of the patient. Even in this helpless state the paralysis is never complete, as in ordinary paralysis, some power of movement always remaining. Death occurs from inter-current disease as pneumonia, diarrhoea, or mere debility. The author then alluded to the fact of the more common occurrence of the disease in men than in women, and adduced much statistical information on the subject, drawn from the experience of French and English asylums. Another fact noticed, was the comparative rarity of the disease in warm climates, the colder latitudes affording most cases.

A Mirror

OF THE PRACTICE OF MEDICINE AND SURGERY, IN THE HOSPITALS OF LONDON.

Nulla est alia pro certo noscendi via, nisi quam plurimas et morborum, et dissectionum historias, tam aliorum proprias, collectas habere et inter se comparare.—MORAGNI *De Sed. et Caus. Morb.* lib. 14. Proœmium.

CHARING-CROSS HOSPITAL.

Hysterical Pain in the Abdomen.

(Under the care of Mr. CANTON.)

PERHAPS no author has contributed more to the advancement of our knowledge in the recognition of those peculiar manifestations of hysteria which occasionally present themselves to the notice of the surgeon than Sir Benjamin Brodie; and though little has been added to our capability of comprehending the intricate nature of this Protean disease, we have nevertheless gained much in an extended acquaintance both with its forms and frequency.

In the accompanying case, the hysterical symptoms were well-marked generally and locally, so as to leave no doubt of the nature of the complaint, as little, indeed, as in the numerous instances which are to be met with of simulated spinal or knee-joint disease, more especially in the higher walks of life. The morbid sensibility of the skin when the hand is even gently applied, or, as it were, merely glancing over it, is a very characteristic feature; and the unconsciousness of pain, when the attention is diverted and firm pressure still maintained on its site, is also a notable peculiarity in these affections. In addition, we remark

here other symptoms which so commonly bespeak the presence of hysteria, or, more properly speaking, which accompany and develop the disease—namely, uterine irregularity, characterized by fits, a peculiar form of crying, copious and limpid urine, constipated bowels and flatulence, and a sensation of choking produced by the well-known *globus hystericus*. Difficulty of micturition was also present, which not unfrequently amounts to actual retention. With respect to this latter symptom, we may refer to the lectures of Dr. Tyler Smith, now publishing in this Journal. "In hysterical females, the clitoris is sometimes subject to a constant erection, almost similar to that which obtains in priapism in the male. During this condition, it is difficult or impossible to pass urine—a point first noticed, I believe, by Dr. Sylvester, of Clapham."

This symptom—retention of urine—is often perpetuated by that unhappy pruriency of feeling over which the patient is unable to exercise any control, and which seeks a morbid gratification in the means we commonly employ for emptying the bladder.

In commenting upon this case, Mr. Canton remarked that in this hospital the sister of the ward is charged with the duty of withdrawing the urine in hysterical retention,—a circumstance which tends materially to diminish the frequency in the requirement of the performance of this operation. In illustration of the peculiar phases sometimes assumed by this inscrutable complaint, it may be mentioned that nearly twenty years ago a young female in the same hospital, under the care of Dr. Shearman, laboured under hysteria which very closely simulated hydrophobia; and two cases of the genuine form of the latter disease having died in the hospital only a short time previous, the medical men were enabled fully to appreciate the resemblance which the feigned disease bore to the true form.

Elizabeth L—, unmarried, aged eighteen, states that ten days previous to her application at the hospital, and whilst sitting on the sill to clean the windows, she fell back suddenly and was much frightened, but did not strike herself, nor was she unseated. She continued her work with ease until towards the evening, when pain suddenly attacked her in the right inguinal region, and opposite to the situation of the ovary. The pain is stated to be internally, as it were, in the pelvis, and is not felt at the surface. On the accession of pain she screamed out and "fell into hysterics," in which condition she continued for upwards of an hour. When recovered, she found the pain abated, but it became augmented a short time afterwards, and has continued off and on ever since. She applied to a dispensary and rubbed soap-liniment on her side, as directed, but the pain and inconvenience were increased by it. Two or three days after her fright, difficulty of micturition became a prominent symptom, and at the same time the inconvenience in her side was greater, especially so as the urine was being voided, and for a few minutes subsequently; she finds herself much

easier after urinating. The secretion is often very limpid, and passed in large quantities. Says she is very hysterical, and subject to sobbing fits, if she is unduly excited, and describes the inconvenience she often feels from the sensation we denominate *globus hystericus*. At fourteen years of age she menstruated: the first flux was inordinate, and weakened her much; since this time the menses have been very scanty, but the periods have been tolerably natural. The flow generally lasts for two, or it may be three days, and occasionally it appears for one only. The secretion is very pale, and has been particularly so since her fright; and at the same time the system does not seem to be so relieved by it as is usually the case. Is not troubled with any inconvenience in the mammae. The bowels are ordinarily confined, and she is much troubled with wind. Her face is remarkable from being almost completely covered with spots of *acne punctata*.

On first examination at the seat of inconvenience, the patient began immediately to cry in an hysterical manner, and as soon as the hand was even in the slightest manner applied to the surface; whilst deeper or more decided pressure, directed inwards or downwards, increased the pain, which she did not, however, complain of when her attention, at the time, was directed to some other subject. There was neither tumefaction, redness, increased temperature, nor ecchymosis of the part; and manipulation of the corresponding portion of the abdomen gave no inconvenience.

This case is undergoing treatment, but no very decided effect has at yet been produced upon the disease, although an improvement in the general symptoms is manifest.

UNIVERSITY COLLEGE HOSPITAL.

Large Cystic Tumour of the Thigh, in a Boy; the Greater Part Removed by Operation.

(Under the care of Mr. ERICHSEN.)

A good deal of interest always attaches itself to the presence of a tumour in any unusual situation, particularly if it bears important relations with surrounding parts, and possesses characters differing somewhat from the ordinary run of tumours. The case we now give is one of this class, where the tumour—which was of truly enormous size—occupied the upper two-thirds of the left thigh at its inner and posterior aspect. It was diagnosed, by the process of exclusion, to be a cystic tumour filled with an albumino-fatty fluid. In the question of diagnosis, three points presented themselves for consideration, which Mr. Erichsen severally dwelt upon: the first was, Could the tumour be a cold abscess? The history of the case, the absence of any osseous disease, and the boy's general good health, precluded any possibility of its being an abscess. Could it be the result of the breaking up and liquefaction of a fibrous or other solid tumour? The entire absence of any hardness or solidity from its commencement, its present uniform elasticity, and the previous collapse

on tapping, pronounced against the second point. It remained to determine whether it was a cystic tumour, after excluding the two other diseases; and this appeared to be the conclusion, that it was a large single cyst developed amongst the adductor muscles of the thigh, and clearly non malignant. Cysts are not uncommon in all other parts of the body, the neck especially, and the breast; but the site of the present tumour was, as we remarked before, an unusual one. Of cases analogous to the present, Mr. Erichsen referred to one somewhat similar, in the practice of an eminent London surgeon, in which a great portion of the cyst was removed and the remainder allowed to suppurate away. Mr. Paget records two instances in his work on Tumours; one in a woman aged twenty-five years, where the tumour was removed without much difficulty, for it was not closely adherent to the surrounding parts, like Mr. Erichsen's, except a small portion of the front of the pubes; a second, in a woman aged fifty years, where Mr. Lawrence removed a tumour in an exactly corresponding part. Both of these operations were successful. The nature of the cyst in each resembled that in the present case, but there was no attachment to muscular substance; whilst this one was not only so, but at the same time actually developed within the adductor magnus muscle. When witnessing the operation, we were forcibly struck with the magnitude and tension of the tumour, and the extreme difficulty experienced in the dissection of its deeper connexions, which were in close proximity to the great femoral vessels; as it was, many small arteries were cut, and required ligatures; the tumour, therefore, was punctured, and the dissection carefully continued, until as much of it as could be conveniently got hold of was removed, and its interior rubbed with *potassa fusa*.

For the notes of the case we are indebted to Mr. D. B. Reid, junior.

Eau C—, aged fourteen, a country boy, was admitted into University College Hospital, under the care of Mr. Erichsen, on February 24th, 1856; is a native of Boston, Lincolnshire, where he now resides; appears strong and healthy, plenty of flesh, good muscular development, with a tolerable amount of colour in his face. About eighteen months ago he first noticed a swelling on the inner aspect of the upper third of the left thigh. The tumour gradually continued to increase for thirteen months, when it was tapped by Mr. Tuxford, and some pints of turbid serous fluid were evacuated. This operation was followed by the general collapse of the tumour, which appeared to consist of a single large cyst. The sac rapidly filled again, and the fluid was evacuated a second time. Shortly after it refilled, and the cyst was injected with tincture of iodine after its evacuation. The injection was not followed by any symptoms, nor signs of inflammation. Having filled, for the fourth time, the boy was brought up to Mr. Erichsen. The only cause which the boy can assign for the disease is the friction of the inner aspect of the thigh against the saddle in riding, to which

he was subjected before the appearance of the tumour. He states positively, that he never suffered any pain in the swelling unless slight aching after more than usual exertion. It never inconvenienced him except by its bulk. His father states that the boy's general health has been unimpaired by the disease, and that he has not lost flesh. On examination, an enormous tumour is found occupying the inner and posterior aspects of the upper two-thirds of the left thigh. Its general circumference is oval, and its limits are best marked inferiorly. Superiorly, it extends up to Poupart's ligament, or as far as the attachment of the adductor muscles to the pelvis will admit, as it is evidently situated under those muscles. Anteriorly and externally, it extends to the femoral vessels, which seem rather pushed outwards. The surface is perfectly smooth and regular. Deep fluctuation is detected throughout, though it is more superficial at the most prominent points internally. No hard nodules can be detected anywhere. Posteriorly, the tumour appears as an enormous additional buttock, situated below the natural one. The fold of the nates is higher on the affected side, and horizontal in direction, being pushed up by the tumour. On flexion and extension of the knee no muscles can be felt acting over the posterior surface of the tumour, though below it the hamstrings are readily felt in action. On adduction, the adductor longus and gracilis muscles are readily felt, very tense, and stretching over the tumour. Standing up, the maximum circumference of the left thigh, five inches below the top of the trochanter, is twenty-five inches; the opposite thigh, on the same level, is seventeen inches. Maximum length of tumour, from above downwards, is equal to ten inches and a half. The tumour was punctured by a small "suction trocar," and one ounce of fluid withdrawn for examination; no air admitted; wound strapped up, and healed. The fluid was thick, viscid, resembling in consistence the white of an egg, yellowish-white colour, and turbid appearance, with numerous small crystals of cholesterol in suspension. Under the microscope they were found to contain a few cells, of about the size of blood discs, all of them being very degenerate, and most of them containing nothing but granular matter; a few, however, contained tripartite nuclei. Many of these cells were partially broken up, and had discharged their contents. Some larger cells were seen filled with granular matter. With acetic acid some tripartite nuclei were brought out; but the cell contents were chiefly granular. On heating some in a test-tube, it solidified entirely, forming a cake of albumen.

March 5th.—The patient being brought under the influence of chloroform, an incision seven inches and a half in length was made along the inner aspect of the thigh, commencing just below the ramus of the pubes. On dissecting up the anterior lip of integument, the gracilis muscle was found expanded and stretched over the inner aspect of the tumour, while the adductor longus was seen stretching over it anteriorly. After turning aside these two muscles, the lower part of the

cyst was exposed, covered by several layers of thickened fascia and muscular fibres. These latter seemed derived from the surrounding muscles, but they looked very much as if some deep muscle had been expanded over and intimately connected with the wall of the cyst. After dissecting away these muscular fibres, and some layers of fascia, it was found that the tumour lay between the adductor magnus behind, and the adductors longus and brevis in front. The wall of the cyst was found, inferiorly, to be connected to the surrounding muscles by loose cellular tissue, which was easily broken through by the finger, or divided by the scalpel. Superiorly, the walls were firmly adherent to the surrounding parts, and blended with them. The cyst was now cut open, and the fluid evacuated. Room being obtained for the introduction of the finger, the cyst was found to run up under the adductor brevis to the pelvis, the ramus of the pubes and the borders of the thyroid foramen being distinctly felt from the inside of the sac. All the wall of the cyst which could be dissected from the surrounding parts was now cut away, and what remained firmly adherent to the muscles was rubbed with caustic potash. The wound was then plugged with lint, and some water-dressing applied. During the operation, which lasted about three-quarters of an hour, but little blood was lost. A few ligatures were applied to some small spouting vessels. The fluid evacuated during the operation contained several small, soft, and light-coloured masses of fungus. Portions of the sac were blended with muscular fibre, in character tough and leathery, and principally composed of cellular tissue. In the evening the wound was dressed. The inferior portion was brought together by sutures and isinglass plaster, superiorly being left open. Water-dressing and bandage. Very restless all night. Headache and vomiting, with heavy expression about the eyes. Ordered, twenty-five minims of laudanum.

6th.—This morning, he was weak, oppressed, and restless; pulse 160, very weak and small; surface warm. Brandy-and-egg mixture was given as a stimulant. Wound looking healthy, but with considerable serous discharge. At noon, he became much worse; the radial pulse imperceptible, while the respiration is deep and sighing; considerable thirst and pallor, with very much uneasiness and restlessness. The bandage was withdrawn, and the wound opened up; no hæmorrhage was detected. Mr. Erichsen saw him in the afternoon, and ordered several of the sutures to be removed, and a large poultice to envelope the whole of the upper and inner aspect of the thigh. To be kept up with beef-tea, brandy, and wine; and to have effervescent salines, to allay thirst and nausea. In the evening, he rallied a little, and the radial pulse was again felt.

7th.—No sleep last night, though he had a draught of morphia; constant exhibition of stimulants during the night; considerable lividity of surface of face, lips, and extremities; quite pulseless; sighing respiration; no cardiac murmur nor complication; lungs healthy, no dulness of bases;

surface cold; face swollen; frontal and occipital headache; no affection of vision. Urine scanty, of most offensive odour, turbid, greenish-brown, with considerable deposit of the same colour; notable quantity of albumen. Under the microscope were seen an enormous quantity of renal epithelium, much granular matter and *débris*, and many casts of large diameter. In the afternoon the lividity considerably increased, and the boy sank and died at half-past four P.M.

Post-mortem Examination, forty hours after death.—Heart healthy; over the surface of the left ventricle and auricle a number of dark, purple, hæmorrhagic patches, closely resembling those of purpura hæmorrhagica. Blood generally of the body rather fluid, and unhealthy looking, dark in colour. Left kidney large, pale, and flabby, with little distinction between cortical and pyramidal substances; appears to be in the early stage of granular degeneration; weight, six ounces and a half. Right kidney smaller, and more healthy looking; weight, four ounces; capsules separate readily in both. All the other viscera healthy. On dissecting the limb, it was found that the cyst lay between the adductor magnus behind, and the adductors longus and brevis and the pectineus in front. Superiorly it extended up in front of the quadratus lumborum and the obturator externus. What remained of the cyst was firmly incorporated and joined with the adductors magnus and brevis; the substance of the former is very much indurated, and the cellular tissue amongst the fibres very much hypertrophied.

GUY'S HOSPITAL.

Stone in the Bladder; Lithotomy; Cure.

(Under the care of Mr. BIRKETT.)

It is a singular fact that a large proportion of the cases of stone operated upon in the London hospitals are sent up from the country, and not unfrequently the patients are in the enjoyment of comparatively robust health. Whether this may depend upon some peculiar diathesis, consequent upon the manner of living in a country district, we will not take upon ourselves to say; but the fact of the greater frequency of stone in the country, as compared with towns and cities, is one tolerably apparent, and worthy the attention of our hospital surgeons, more especially in a statistical point of view. The subjoined case was one of this character, and, as might be expected in individuals of a robust habit of body and healthy aspect, the urine possessed acid properties, with occasional deposits of the lithates. The symptoms of stone were at no period very urgent, unless on taking violent exercise, when the urine became mixed with blood. Lithotomy was performed by Mr. Birkett, and a uric acid calculus was extracted. With the exception of some severe pain in the bladder on the day of the operation, consequent upon the plugging of the wound by a coagulum, the case proceeded to a satisfactory termination.

J. M.—, aged fifty-eight, was admitted into

the Luke ward on Nov. 7th, 1855 under the care of Mr. Birkett. His occupation was that of a farmer and innkeeper in a village in Kent. He had enjoyed very good health, and he had a robust and healthy aspect. He said that during the last two or three years he had experienced a slight difficulty in micturition, occasionally, the size of the stream being as usual. Twenty months before, after taking violent horse exercise, he felt a great desire to pass urine, and when doing so he observed that blood was mixed with it. Its passage was effected with difficulty and pain, but after a time it became clear, and of the usual colour. From that time to the present, whenever he has used any unusually violent exercise, blood has been mixed with the urine. He has occasionally observed a little red deposit in it, but no mucus precipitates from it. He does not complain of any pain in the lumbar or pubic regions, but only in the urethra whilst passing urine. This act he is obliged to perform about every two hours, and generally a few drops of urine escape in the intervals. Sometimes the stream is suddenly arrested. Appetite very good; the bowels are relieved regularly.

Nov. 8th.—A stone was easily detected with a sound.

18th.—Frequent necessity for micturition continues; urine acid, specific gravity 1024, deep-brown red tint, scarcely any sediment. The bladder was injected to test its capability of retaining sufficient water to enable lithotomy to be performed. It would not, however, retain half a pint for any length of time. The bowels being costive, he was ordered an aperient dose.

20th.—One P.M.: Mr. Birkett performed lithotomy, the patient being under the influence of chloroform. Ligatures were tied on four bleeding arteries. A stone consisting of uric acid was removed. It was oval, flattened on two sides, and about an inch in its longest axis. Two knives were used in performing the operation; the knife with which the bladder was incised had a narrow, straight blade, contracting towards the point, which was blunted. Half an hour after the operation, hæmorrhage took place, but it was soon arrested by pressure, and the application of cold. A grain of opium was ordered.—Three P.M.: As he complained of great pain, and was very restless, he had forty drops of laudanum.—Five P.M.: His cheeks were very pale, and he was much excited and very restless, complaining of great pain. Ordered another grain of opium.—Ten P.M.: He complained of intense pain above the pubes, and of an urgent desire to pass urine. None had passed through the wound, which was clearly plugged with coagulum. Mr. Birkett passed a large flexible catheter into the bladder, and through this blood and urine flowed. The patient immediately obtained relief, the pain entirely subsiding after a few minutes. At midnight he took a drachm of laudanum.

21st.—He passed a tolerably good night. No bleeding and no urgent desire to pass urine, although at half-past nine some had passed through the wound. Aspect good; pulse regular, steady, but not very full.—Half-past one P.M.:

Urine mixed with blood flowed freely through the wound.—Ten P.M.: Is very comfortable. Pains occasionally, particularly as the urine flows over the wound; pulse steady, 90, compressible.

22nd.—Slept well last night; no pain; appetite good; skin moist; tongue slightly furred; pulse 80.

23rd.—Not an untoward symptom. From this date, he gradually became convalescent, but on the 29th there was some hæmorrhage from the urethra. The wound was slow in healing, not being perfectly closed until the thirty-fifth day after the operation.

On the 29th of December, he returned home cured.

Stone in the Bladder; Inflammation and Suppuration of the Kidneys and Lungs; Pyæmia; Death and Necropsy.

(Under the care of Mr. BIRKETT.)

Shivering and rigors are most constant accompaniments of the formation of an abscess; the latter have been considered to depend upon the formation of pus, but the fact is undisputed that they are the forerunners of suppuration. A distinct rigor is not an uncommon occurrence after the passage of any instrument into the bladder. It is not of so much importance in itself, unless when it becomes associated with, or is followed by, certain manifestations—severe pain, for instance. Although very striking symptoms, rigors are not necessarily connected with suppuration. Unfortunately, however, they proved otherwise in the following case, in which the symptoms were so far favourable as to lead Mr. Birkett to contemplate the operation of lithotomy. The mere injection of the bladder and introduction of an instrument for examining the stone was followed the same night by chilliness, and the next day by severe pain in the loins and distinct rigors. These symptoms, in a cachectic-looking subject, with a nervous temperament, were of serious importance, especially as the rigors became more continuous and severe, and the constitutional disturbance greater. The urine became purulent, and intolerably offensive, the pains were universal, and all the symptoms and destructive effects of pyæmia were clearly manifest. It is this malady which gives to many fatal injuries, and to most of the fatal operations of surgery, their mortal character, and produces anxiety in the mind of the surgeon as to the result of the case. When this condition of things presents itself, there is very little hope for the patient, and the resources of our art in the treatment, as might be expected, were in the present instance unsatisfactory, and a fatal termination followed.

H. P. J.—, aged fifty, a native of a provincial village, was admitted, January 14th, 1856; a shoemaker by trade, his occupation is necessarily sedentary, and to which circumstance he attributes a somewhat pallid, cachectic aspect, for he says he has enjoyed good health until within the last few years. His occupation was not sufficiently profitable to enable him to live well, and he is spare, thin, and has an aspect of facial anxiety more than commensurate with his acknowledged sufferings.

He is a member of a healthy family, in which there has been no hereditary tendency to gout, rheumatism, or stone. Seven or eight years since he observed blood to be mixed with his urine, although at that time he felt no pain. After the lapse of some months, he experienced a little pain on micturition, and stoppages of the stream would occur. At times he suffered very much pain at the end of the glans penis, but these attacks passed off, and he was free from acute suffering for weeks together. Medical treatment had not afforded him much relief.

January 15th.—A stone was struck in the bladder, which viscus was dilated and capacious, but apparently healthy. The operation of sounding with a No. 6 instrument caused no pain. He was ordered an aperient at night, and to take saline mixture three times a day; nourishing diet, with six ounces of wine.

On the 16th and 17th, the patient seemed very comfortable; and as the case appeared one peculiarly suitable for the performance of lithotomy, on the 18th three-quarters of a pint of warm water, of the temperature of the urine, was injected, to test the capability of the bladder of holding water. This operation caused very little pain, the bladder retaining the water without inconvenience. The stone was felt with a sound with the utmost facility, and might have been seized with the lithotrite without difficulty. Before the operation he said he had not felt quite so well as usual; but his complaints seemed too trivial and insufficient to excite much attention. In the evening of this day, he felt cold, chilly, and "shivery," but that night he slept well.

19th.—He did not feel well in the morning, and he could not eat his dinner, but he went out of the ward, and into the open air. He complained about two P.M., of pain in the right lumbar region and back, and of chilliness, and his aspect betokened depression. There being much flatulency in the colon, he was ordered a dose of sulphate of potash and rhubarb.

20th.—At half-past two A.M. the patient was attacked with a distinct rigor, followed by profuse sweating. At half-past ten A.M. he looked very ill. He had passed two pints and a half of high-coloured, alkaline, offensive urine, and at the bottom of the vessel containing it, there was a precipitate of a purulent, slightly tenacious secretion. Pulse rapid and small; tongue dry; skin moist. He complained of pain in the back and loins, and he frequently passed urine. More rigors followed. The countenance was depressed and pallid. In the evening he was ordered ten grains of compound ipecacuanha powder and saline mixture every four hours.

21st.—He passed a comfortable night, and slept well, but early in the morning the rigors recurred. At half-past one he was almost pulseless. Five ounces of brandy were ordered. In the evening his pulse was distinct, but feeble and rapid. At night he was again ordered ten grains of compound ipecacuanha powder.

22nd.—He has passed a good night, and ap-

pears better. Urine dark-brown, turbid, and intolerably offensive. He still, however, complains of pains all over him, and an urgent and constant desire to pass urine. Ordered to take ten minims of nitro-muriatic acid three times a day. At night he again took ten grains of compound ipecacuanha powder.

From this time he went from bad to worse till the 29th, on which day he expired.

The necropsy was performed by Dr. Wilks. The lungs were inflamed, and numerous abscesses indicated that lobular pneumonia had existed; some of these abscesses had burst into the pleural cavity, and given rise to pleurisy. The heart was healthy, and the muscular fibre was found, even by microscopic examination, to be free from any degeneration. The liver was normal, and simply congested. Both kidneys were acutely inflamed, their capsule thickened, and both studded with abscesses; the disorganization of the right kidney was more advanced than the left; their pelvis were dilated. The ureters and bladder were acutely inflamed. The bladder showed signs of both old and recent inflammation; its coats were thick, but it was contracted; the mucous membrane was covered with shreds of lymph and phosphatic deposit, and it had a rugous irregular surface.

Mr. Birkett extracted the calculus after death, through an incision made in the centre of the perineum and the membranous portion of the urethra.

INQUESTS AND MEDICAL TRIALS.

DEATHS FROM POISONOUS VEGETABLES.

I. ACCIDENTAL POISONING BY THE LEAVES OF MONKSHOOD.

(*Aconitum Napellus*).

IN THE LANCET for 1855, we recorded a case of fatal poisoning by the tincture of aconite: the following is an instance in which death was occasioned by the ingestion of a portion of the plant itself.

H. A. M—, a child two years and seven months of age, and who had resided with his parents at Isleworth, became the subject of an inquest there on May 17th, 1854. A neighbour living in the next cottage deposed that on the Friday previous, about five o'clock in the afternoon, she was sent for, and found the child in his mother's arms, apparently in great agony, and very sick, vomiting much "phlegm." Dr. Mackinlay, of Isleworth, was sent for about half-past five, and his assistant, Mr. Cockledge, was shortly afterwards in attendance. He found the child retching violently, and suffering intense pain in the stomach. The pupil was at this time found to be contracted. Having discovered stalks and leaves of aconite strewed about in front of the cottage, Mr. Cockledge suspected that some portion of this plant had been eaten, and administered an emetic of mustard, which brought away the dinner that had been taken by the child, together with some green vegetable matter—pieces of leaves. Fearing to augment the inflammation of the

stomach and intestines, which evidently existed, by any repetition of the mustard emetic, Mr. Cockledge now made the patient take a demulcent, composed of white of egg and gum arabic, with a view to sheathe and involve the poisonous matter, if more still remained in the stomach. Mustard poultices were applied to the abdomen. The child continued to roll about on a bed, screaming with pain for some time; and the vomiting persisted till eleven o'clock at night, after which collapse set in, the limbs became flaccid, and patchy spots and discolorations were observed upon them. On the next morning, when the surgeon again saw the child, he was almost comatose; brandy failed to revive him: and he died shortly after nine o'clock in the same forenoon. While sensible, the child acknowledged that he had eaten the leaves of some plants in the garden, and it was afterwards clearly discovered what these leaves were. The father, in his evidence, stated that the child had become fretful about three o'clock in the afternoon of Friday, and that he remained so for about an hour, when some warm tea was given to him, after which he became rapidly ill, and the vomiting commenced. He denied that the child had been out of the house after having had his dinner at one o'clock; so that death probably occurred from twenty to twenty-one hours after taking the poison. The quantity of the leaves which had been eaten could not be ascertained.

At the post-mortem examination, sixty hours after death, the abdomen was found externally much discoloured; patchy discolorations were also visible on the thighs and legs, but the spots there were not so apparent as during life. The stomach was found highly inflamed throughout its whole extent; it contained a little fluid of a lightish-brown colour, but no food, nor any traces of leaves or other vegetable matter. In various parts of the small intestine were patches of intense inflammation, in some places approaching to gangrene. The large intestines presented nothing particular. The bladder was full of urine; the spleen somewhat congested. The pericardium contained about half an ounce of bloody serum. The heart was full of uncoagulated blood, and all the blood throughout the body was thin and fluid. These were the principal appearances worthy of remark.

In the last edition of Thomson's "Dispensatory" it is alleged, in reference to poisoning by aconite, that "dissections of fatal cases have not displayed any particular marks of inflammatory action." In the case just detailed, however, no doubt existed that the death had been occasioned by the leaves of aconite, and such appearances were extensively manifested.

II. ACCIDENTAL POISONING BY THE BERRIES OF WOODY NIGHTSHADE.

(*Solanum Dulcamara*).

J. J. C—, a little boy four years of age, and living with his parents in the immediate neighbourhood of the metropolis, on the afternoon of September 12th, 1853, went out to play with some other children, amongst whom were his sisters, respective-

ly two and four years older than himself. About five o'clock he had some tea and bread and butter, and in the course of the evening he ate a ripe pear which was given him by a relative. About half-past eight he had some more bread and butter. He went to bed perfectly well, and remained undisturbed in health during the night. At length, about six o'clock next morning, he was attacked with purging and vomiting, and subsequently with convulsions, upon which medical assistance was sought by the parents. Mr. Ede, of Barnsbury Park, Islington, attended. He found that the child had been already placed in a warm bath, and that the convulsions had at the time of his visit (eleven o'clock) subsided; but they returned, and continued at intervals during the day, leaving the child between the access of the fits comatose and insensible. Vomiting of dark-greenish and bilious matters persisted; and about seven o'clock in the evening the child was attacked with convulsions, which remained permanent till his death, shortly after eleven o'clock the same night, September 13th. During the day, a mustard poultice was placed over the abdomen; but the nature of the case was quite obscure to the medical practitioner. He could only suspect that some injurious vegetable or other substance had been eaten, from the fact that the sister of the child next older than himself had also been sick and purged; from which condition, however, she recovered without more serious effects. On the day after the death, it was ascertained from the other children that whilst at play they had plucked and eaten some red and black berries growing in a hedge; that the deceased was known to have eaten two and his next sister one of the red berries; the eldest sister had eaten two, but she escaped without any ill consequences. It was thought that the deceased child might very probably have swallowed more than two of the berries, but this could not be determined; the matters ejected from the body were not sufficiently scrutinized to throw any light on the subject. A twig of the plant from which the children stated the berries had been plucked was produced in the inquest-room; it proved to be the *solanum dulcamara*, or woody nightshade, and no doubt existed that the child had met his death from eating the berries of that plant.

Remarks.—In Thomson's "Materia Medica," it is mentioned that these berries, "which ripen in September and October, are oval, scarlet, very juicy, bitter, and poisonous; they excite violent vomiting and purging;" but a remarkable assertion is made by the editor of the last edition of that work, that "he finds that the berries are by no means poisonous, even in large doses." This assertion is made only on the ground that a patient suffering from psoriasis took half a pound of the berries daily for some time, which removed that troublesome and frequently intractable disease—a fact worth knowing by medical practitioners. Professor Taylor quotes authorities stating that 180 ripe berries of *dulcamara* were given to a dog without any ill effects resulting; but, on the other hand, that thirty of the berries killed another dog

in three hours. ("Med. Jurisp." last edition, p. 175). Dr. Lindley says decisively that the berries of *solanum dulcamara* "are by no means safe, although it does appear that in some cases they have been taken into the stomach without inconvenience." ("Vegetable Kingdom," p. 620.) He adds, "*Solanum nigrum*, a very common weed in all parts of the world, except the coldest, is more active." This plant, called garden nightshade, bears a white flower and a black berry, and is found in hedges and other places along with the woody nightshade. It is most likely that the "black berries" mentioned in our narrative above were those of this plant, and not of the *atropa belladonna*, or deadly nightshade, which is rare in the neighbourhood of London. It is not, however, alleged that the deceased child ate any black berries, but only red ones, and the source of which was clearly enough made out. Idiosyncrasy, and the locality in which the *solanum dulcamara* grows, may have much to do with rendering its berries poisonous, or otherwise, to individuals. But that a person under disease has been enabled to swallow large quantities of them with a salutary effect does not prove that the berries are innoxious. The case we have detailed—where not only a death was occasioned, but symptoms of poisoning were apparently produced in another child by a single berry—sufficiently indicates that the fruit of the woody nightshade cannot be eaten by healthy children with impunity.

III. SUSPECTED POISONING BY CHAMPIGNONS.

A man who lived at a public-house as a potboy for fifteen or sixteen months, but whose only known cognomen was "John," was taken ill about mid-day on the 28th of August, 1852, and went to bed. As it was a season when cholera was much feared, medical assistance was promptly procured. Mr. Keen, of Shepherd's Bush, according saw him about half-past two o'clock, and found him perfectly sensible, quite free from fever or pain, except that there was slight tenderness felt on pressure over the stomach, which appeared somewhat puffed, and bulging out the epigastric region. The tongue was tolerably clean; there was no thirst, nor acceleration of pulse, but some agitation of the hands was observable. Knowing him to be a confirmed drunkard (his ordinary allowance of beer, independently of other stimuli, being at least a gallon per diem), the surgeon considered he was suffering from a bilious attack, prescribed six grains of calomel, and left him. At about ten o'clock the same night he was informed that his patient was dead.

It seems that after being prescribed for, the man got up and continued about his work until evening, when he made into a stew some champignons, which had been gathered in a field two days before, and of which he had eaten during two successive evenings. On the 28th, after eating them, he had complained of pain in his bowels. On the 28th he complained about half-past nine o'clock that his stomach ached, and he again went to bed.

A man who slept in the same room shortly afterwards found him better, as he said, and wishing for a glass of gin-and-water, which was supplied to him. Before ten o'clock this man found him dead in his bed, where he had expired apparently without a struggle or intimation of his decease.

Mr. Keen who made a post-mortem examination on the 31st, the day of the inquest, found the body then in a state of decomposition, which, for the time that had elapsed since the death, was quite extraordinary. The abdomen externally appeared greatly distended. The intestines were generally healthy, as was the peritoneum, except in one place—namely, at a portion of its duplicature, reflected to form the great omentum near to the great curvature of the stomach, where there appeared some injection of the vessels. The mucous membrane of the stomach, however, was highly congested, especially at its larger end, where it was of a dusky-red colour, indicating an intensely inflamed condition; and the œsophagus was also found inflamed. The liver displayed that mottled appearance very common in persons addicted to intoxication. The opinion of the surgeon was, that the champignons had, by their poisonous tendency, augmented a chronic inflammation of the stomach induced by the habitual use of stimuli, and so had been the immediate cause of death. Two other persons, of less dissipated and irregular habits than the deceased, who had also partaken of champignons, had escaped without any serious results.

THE MILITARY SURGEON.

"Idomeneus thus addressed Nestor:—Haste to your chariot: let Machaon ride by your side, and drive him to the fleet. His life is precious; for one good physician (and such is Machaon) is worth a whole army."—*Homer's Iliad*, Book xi.

"Le roy (Charles IX.) n'en voulut jamais sauver aucun, si non maître Ambroise Paré, son premier chirurgien, et le premier de la chrétienté, et l'avoya quérir et venir le soir dans sa chambre et gard-robe, lay commandant de n'en bouger: il disoit qu'il n'étoit raisonnable qu'un qui pouvoit servir à tout un petit monde fut ainsi massacré."—*Brantôme*, La Haye, 1760, tome ix., page 497.

If war develops the latent ferocities of human nature, it also elicits all the finer feelings of humanity. Amid the din of battle, traits of character struggle into light—like gleams of sunshine bursting through the blackaaks of a thunder-storm—which show that the heroism of the warrior is often blended with the pitying tenderness of a woman; and that he whose strong right arm has cloven a lane through the ranks of the enemy often stoops to staunch the wounds, or moisten the parched lips of a fallen foe.

It is our purpose to show that *Medicine*—which ever scatters her benefits with a lavish hand, unthanked and unrewarded—carries her blessings into the camp and the battle-field; and that no class of men exhibit more nobly all the holier attributes of human nature than these men—our soldier-surgeons—whom the officials of a Government or an army (oftentimes insolent and ignorant), are ever prone to treat with an unmerited *hauteur* and neglect.

Machaon was the surgeon of Nestor; and all

our readers who are familiar with the Homeric story, know how much and how fondly the bard dwells upon his courage in the battle, and his skill in his art. We are proud to think that such men do not live only in the "Iliad," but that in every age there have been, and in the present day there are, many who are equally skilful and equally brave. Paré, Baron Larrey, Desgenettes, Bécourt, the Frères Paulet, Guthrie, and Ballingall, are names which bear a historic lustre as the ministrants of mercy and hope to the wounded; and Lévy, Pontier, Thomson, and Wilson, are men of the present day—formed of the same stern and sterling stuff.

In reading, we recently met an article written by Colonel Ambert, of the 4th Regiment of French Dragoons, in which the writer bears testimony to the bravery and heroism of the army surgeons.* The picturesque eloquence of the Colonel's style tempts us to translate a few passages for the benefit of the reader.

"We look," says he, "with pleasure at a regiment on its march. Our hearts are thrilled by the martial music, and we regard with deep interest its mounted generals who have turned grey in the service of their country, leaving home, comfort, and riches, for the hardships of the tented field. The soldiers who follow on foot, ranged in companies, are their natural successors. These crosses, these epaulettes, and that authority, will become the heritage of those men, who, with burdens on their backs, silently obey."

Would to God *we*, in England, could say as much! Little inducement have our soldiers to become skilful in their art, since the merest booby who has a weighty purse, or an aristocratic relation, may be placed over the heads of the bravest, best, and wisest men in the service. Must these things continue? Truly they manage things much better in France!

But to revert again to the words of Colonel Ambert:—

"Following these long files of soldiers, we observe a man, modestly clad, and walking on foot. Like them he is on the road to battle; but he is not, like them, on the road to glorious renown and fortune. His duties will be unattended with *éclat*; his vigils will be unremembered; and even though he should prove a hero, as did Bécourt at the field of Eylau, he will probably not, like him, be personally rewarded by the Emperor. But an hour will come when this man will be the chief amongst all this multitude. It is the hour after the battle! During the fight he will brave death as fearlessly as any other one. Without sharing the excitement of the combatants, he will be a great actor in the bloody strife. He will be calm and reflective when all around him are agitated and distracted. He denies himself emotion, for his hand must not tremble; his glance must be penetrating, and his judgment must be prompt and unerring. In an atmosphere of grape-shot and

* Col. Ambert's admirable article, originally published in the *Constitutionnel*, lies before us in the number of *L'Union Médicale* for Oct. 31st, 1855.

smoke he is as collected as in his cabinet. The shrieks of the wounded, and the booming of the cannons disturb him not; his hand is as steady as in the operating-theatre of an hospital. All ranks appeal to him for aid, and he obeys as promptly the call of the poor soldier as of the mighty general; he succours the fallen of the enemy as well as the wounded of his own army. The mangled and dying bodies of his companions and friends are brought to him, yet he must stifle in the birth every rising emotion, for the eye of the surgeon should never be veiled by a tear. Kneeling on the bloody straw of the ambulance carriage, he coolly issues his orders, and his moral courage revives the sinking hopes of the wounded; for his face wears a supreme calm which inspires them with confidence.

"In these solemn hours the military surgeon is the repository of great mysteries. The dying man entrusts him with tender messages for his far-away family; one confides to him his riches, another his profoundest secrets. After the battle, the general, the officer, and the soldier hear only the shouts of triumph and songs of joy; but the surgeon only hears the long and plaintive groaning of the whole army.

"Night comes; and all are asleep save him. A vigilant sentinel, he is awake amongst the wounded. Next day, though exhausted with fatigue, he sets out with the ambulance; he goes to one and to another; here, hastily exploring a wound; there, searching for a bullet in the cavity of the human chest. He goes about giving hope to all; *sowing life*,—so to speak; wrestling, in despair, with death; inventing and improvising a thousand methods; transforming planks and cords into surgical apparatus; even tearing his clothes into rags to staunch the blood of the wounded. His is the struggle between the blind force of destruction and the intelligent power of conservative science.

"Such is the man whom we have seen modestly walking at the left of the regiment.

"Honour then to him! His mission in armies is a thousand times sacred! Wives, mothers, and sisters—ye who, in the silence of the home-hearth tremble for those who, far away from you, are engaged in the glorious duties of war,—calm your fears:—Science and Charity watch over those you love."

In these enthusiastic words does the French colonel describe the sacred duties of the soldier-surgeons. On some future occasion we may sketch other traits in their character, and give other illustrations of their bravery; meanwhile, we would conclude these remarks with a noble sonnet, from the little volume of war poems recently published by Alexander Smith and Sydney Yendye—which expresses in bold verse all the heroism and self-devoting devotion of which we have spoken:—

"Over that breathing waste of friends and foes,
The wounded and the dying, hour by hour,—
In will a thousand, yet but one in power,—
He labours thro' the red and groaning day.
The fearful moorland where the myriads lay
Moved as a moving field of mangled worms,
And as a raw brood, orphaned in the storm,
Thrust up their heads if the wind bend a spray
Above them, but when the bare branch performs

No sweet parental office, sink away
With hopeless chirp of woe, so, as he goes,
Around his feet in clamorous agony
They rise and fall; and all the seething plain
Bubbles a cauldron vast of many coloured pain."

Dumfries, June, 1864.

A. M. A.

PROCESS FOR OBTAINING STRYCHNINE FROM THE ORGANS AND TISSUES OF THE BODY.

To the Editor of THE LANCET.

SIR,—In accordance with our promise to you in our communication of the 11th inst., we now send you the details of the process which enabled us to separate strychnine from the contents of the stomach, blood, liver, kidneys, and tissues of animals destroyed by that poison, and, in one case, even so long as twelve months after interment. Previous to entering into details, we would observe that, as the smallest trace of organic and other matters invariably interferes with, and often prevents, the characteristic colour of the test for strychnine, it is essentially necessary to isolate this alkaloid before applying the appropriate tests; indeed, this perfect isolation constitutes the value of our process. We would observe, further, that putrefaction, so far from interfering with the separation of strychnine, greatly facilitates it.

The process is as follows:—Digest the contents of a stomach, together with that organ itself (cut into small pieces), with water acidulated with hydrochloric acid (acetic or sulphuric acids will do, but we give the preference to the hydrochloric), in a porcelain dish, over a water-bath, for not less than two hours; when cold, strain through muslin, and filter; evaporate to dryness over a water-bath; digest the residue in alcohol, acidulated with a few drops of hydrochloric acid; filter, and evaporate to dryness over a water-bath; treat with distilled water, and when all that is soluble is taken up (in some cases the whole is dissolved, in others there is a considerable residue), filter into a long wide tube; then add excess of ammonia, and agitate with about half an ounce of chloroform. When the chloroform has subsided, it must be separated by means of a pipette, and poured into a small evaporating basin, and evaporated to dryness. This residue contains the strychnine, but with so much organic matter that it would be absurd to expect the reactions of the test, except when present in large quantity, until further purified, and to effect this it must then be moistened with concentrated sulphuric acid, and allowed to remain over the water-bath for at least half an hour; distilled water must then be added, and the solution poured into a test-tube, care being taken to rinse out the dish with hot distilled water; when cold, add excess of ammonia, and agitate with about three drachms of chloroform. This last chloroform solution usually contains the strychnine in a state sufficiently pure to admit of testing; but in some cases it will be found necessary, when the substance is present in extremely minute quantity, to repeat the operation of charring the organic matter with concentrated sulphuric acid, and again

separating with chloroform. A small portion of this chloroform is now to be separated by a small pipette, and several drops allowed to evaporate successively on as small a space as possible on a white porcelain capsule. A drop of concentrated sulphuric acid is then added, allowed to remain for half a minute, and a small crystal of bichromate of potash is then placed in it, and after remaining for a few seconds, is drawn across in various directions by means of a fine glass rod. The characteristic violet colour will mark the course of the crystal.

It cannot be too generally known that the substances said wholly to prevent the detection of strychnine can never do so in the hands of a competent analyst; and we would mention that in our experiments they did not oppose the slightest obstacle.

When the liver, spleen, or kidneys are the subject of analysis, it is advantageous to reduce these organs to a state of pulp in a mortar previous to digestion with acidulated water. In the case of the tissues, if recent, they should be cut up as fine as possible, and triturated in a mortar in like manner; if long after interment, this proceeding is unnecessary.

In the above process, it is occasionally found that the particles of chloroform do not readily join together. In this case, placing the tube in hot water will generally effect that object; but in some cases it will be found necessary to dilute largely with water.

From what we have said, it will be seen that, by the process given in evidence by Dr. Taylor at the recent trial at the Old Bailey, the strychnine could not be obtained (except when present in very large quantity) in such a state of purity as to exhibit the characteristic reactions, and would utterly fail where the blood, organs, or tissues were the subject of analysis. Consequently, for future security, it must be a matter of regret that some more perfect method was not employed, particularly as the symptoms on the Sunday and Monday night could not be those of strychnine, seeing that there was but one paroxysm, followed by a long intermission on such occasion, and which might with more propriety be attributed to cyanide of potassium or ammonium. We would, in conclusion, state our perfect concurrence in the opinions publicly expressed by Mr. Herapath, Dr. Letheby, and others, that the colour-tests, with proper precautions, are in the highest degree trustworthy.

We are, Sir,

Your obedient servants,

J. E. D. ROGERS,

Lecturer on Chemistry at the St. George's School of Medicine.

G. P. GIRDWOOD,

Assistant-Surgeon, Grenadier Guards.

Laboratory, St. George's School of Medicine.

DEFINITION OF STRYCHNINE.

To the Editor of THE LANCET.

SIR,—It appears from the evidence on the late trial of the Queen v. Palmer, that the difference of opinion between the analytical chemists as to the detection of strychnia depends upon the question whether or not that drug undergoes positive change by its absorption into the blood during the continuance of vitality.*

It seems probable that the following experiment would at once determine this point. It appears strange, at all events, that it has not been tried, and the result reported.

Let strychnia be administered to an animal in doses sufficient to produce decided evidences of its operation (the first three phenomena of Dr. Marshall Hall), but *not* sufficient to cause death. Let the animal be subsequently killed by *other* means. If, under these circumstances, strychnia were detected, it seems to me that the question would be solved.

Will you permit me to direct attention to another question which arises in connexion with this "cause célèbre?"

The inquest on John Parsons Cook was held early in December. Dr. Taylor then stated his belief that death was attributable to strychnia. Between that period and the month of February, paragraphs, headed "Dr. Taylor's inaccuracy," were inserted (with great want of judgment, to use no harsher phrase) in many newspapers. In the March following, a woman died with all the symptoms of poisoning by strychnia, and this alkaloid was abundantly found in her system.

If the strychnia, in this case, had been administered with intent to kill, how far had the selection of that poison, or indeed the employment of any poison whatever, been influenced by the paragraphs above mentioned?

I need not point out how serious a question this must be to those journalists who thoughtlessly inserted the statements mentioned.

I am, Sir, your obedient servant,

H. G. WRIGHT, M. D.

Somerset-street, Portman-square.

ACTING ASSISTANT-SURGEONS OF THE ARMY.

To the Editor of THE LANCET.

SIR,—The Government are now about dismissing the acting assistant-surgeons of the army, and as a retiring allowance they are to receive but two months' pay. This is the cause of much anxiety and annoyance. They have rendered great and important services, volunteered to undergo all the dangers of the war, passed through all the horrors of our hospitals, and what is their recompense? Their brethren in the Turkish Contingent, as well as the civil surgeons, who received much higher pay, are to have a year's salary as retiring allow-

* DR. TAYLOR.—It (strychnia) is absorbed into the blood. It is in a great part changed in the blood.

DR. LETHEBY.—I do not agree that it is changed when it is absorbed into the blood; but I agree with its absorption.

THE TIMES—Report of Evidence on Trial.

ance; and even the militia medical officers, who have never been near the seat of war, are to be treated in like manner; while the acting assistant-surgeons of the army, who have seen most service, are to be compensated in the least degree.

Trusting you will advocate our cause, I beg leave to remain,

Your obedient servant,

AN ACTING ASSISTANT SURGEON.

Chatham, July, 1866.

News Items, Medical Facts, &c.

CLOSE OF THE PALMER TRAGEDY.—The awful *dénouement* of the Rugeley poisoning case took place last Saturday morning by the execution of the wretched culprit, William Palmer, in front of the Stafford gaol. From the period of his condemnation until the afternoon preceding the execution, the hapless man appeared to be buoyed up with a hope that the Royal clemency would be shown him, through the Home-office; and although such a surmise was cherished by a few individuals who had taken a deep interest on his behalf, yet at no time was it a popular opinion. Mr. John Smith, the solicitor for Palmer, made the greatest exertions to stay the execution; and, as a final effort, wrote to Sir George Grey for a postponement of the final sentence of the law, grounding his application, first, upon the character of Charles Newton, who was the principal witness on the part of the Crown, and whose antecedents were unfortunately unknown to him at the time of the trial; as also upon the character of Mills, whose previous history was, until a day or two before, hidden from him. Secondly, upon the absence of two witnesses, who could, as he believed, have given satisfactory proofs as to the disposal of the poisons purchased by the prisoner, as well as the disposal of Cook's money. Thirdly, upon the discrepancy of the medical testimony as to the power of finding strychnia. And, lastly, the judge's charge. He also asserted that part of Newton's evidence was inconsistent with proved facts, and that Newton had been twice in custody for theft in Nottingham. He likewise asserted that the witness Mills perjured herself. On the medical and chemical evidence he repeated the statements already so often made, that the strychnia, if administered, would have been found. Lord Campbell's charge he characterized as "one-sided and mistaken." However, this, and all other attempts to arrest the ends of justice, proved wholly unavailing, as Sir George Grey thus replied:—"Whitehall, June 12th, 1866. Sir,—Secretary Sir George Grey has received and considered your letter of the 10th and 11th inst., in behalf of William Palmer, and he directs me to inform you that he can see nothing in any of the points that you have pressed upon his attention which would justify him in interfering with the due course of the law in this case.—I am, Sir, your obedient servant, H. WADDINGTON.—Mr. John Smith, Bacon's Hotel, Great Queen-street." Notwithstanding this, Mr. Smith remained in London until the latest moment, endeavouring to obtain a respite. He then,

at the earnest solicitation of the prisoner, returned to Stafford. It was half-past ten at night before he arrived. The result of his interview with the condemned man is stated in the following telegraphic despatch, which reached a friend in London on Saturday morning:—"My interview ended in Palmer's making me pledge myself that Cook's body should be exhumed, and that he was never poisoned by strychnia. Palmer was as cool as though any ordinary question was discussed. God help him!" This might now be said to be the last of the wretched man's hopes, but still he continued calm, and his demeanour was quite unaltered when informed of the final decision of the Home Secretary, and thus he continued to the end of his painful career, never at any period, not even when standing under the fatal beam, showing the least evidence of dread or want of self-confidence. He made no confession; but when asked by his clerical attendant and the officers of the gaol on the subject, he coolly replied, "Cook did not die from strychnia." With such an evasive answer it is left for the world to judge of the real meaning of the culprit.

METHOD FOR EXTRACTING VOLUMINOUS CALCULI FROM THE BLADDER.—A report was lately read before the Academy of Medicine of Paris, by M. Ségalas, on two cases of lithotomy, submitted to that learned society by M. Carathéodory, Surgeon to the Sultan, and professor of Surgery at the Medical School of Constantinople. The patients were respectively twenty-six and thirty years of age, and were operated upon by Dupuytren's bilateral section. On the forceps being introduced in the first case, the stone was found so large, that the surgeon, greatly embarrassed, resorted to a second vertical incision through the centre of the prostate and the upper half of the sphincter ani. The stone was then removed through this semi-artificial and natural aperture, and the patient made a good recovery. The calculus broke during the extraction, each half being the size of a hen's egg. In the second case the stone was not only large, but adherent, probably by means of a cyst, to the parietes of the bladder. The same secondary incision was made as in the first case, the calculus raised with a spatula, and finally removed. The operator had also to remove calcareous concretion from the spot where the stone had been attached. This second patient also recovered perfectly.

SUICIDE OF A SURGEON BY PRUSSIC ACID.—A distressing circumstance happened on Saturday morning last (market day) at Warminster. A gentleman named Chapman, who has but recently taken out his diploma, had been attending the patients of Mr. Grubbe, of that town, in consequence of the indisposition of that gentleman. About eleven o'clock, after a walk in the garden with a friend, the unfortunate gentleman went into the surgery, and drank off half an ounce of prussic acid. He was shortly afterwards discovered on the floor quite dead. No cause can be assigned for the rash act.

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A Course of Lectures ON THE THEORY AND PRACTICE OF OBSTETRICS.

By W. TYLER SMITH, M.D.,

PHYSICIAN-ACCOCUCHEUR TO ST. MARY'S HOSPITAL, AND LECTURER ON MIDWIFERY AND THE DISEASES OF WOMEN IN ST. MARY'S HOSPITAL MEDICAL SCHOOL.

LECTURE XVIII.

THE FŒTUS IN UTERO.

GENTLEMEN,—It was an antiquated and fanciful notion, that the fœtus sat upright in utero, rubbing its head against the maternal stomach, so as to cause heartburn; and it was supposed that the larger quantity of hair in boys caused a greater amount of heartburn than occurred with female children. Even as late as the time of Sir Fielding Oulde, in the middle of the last century, it was believed that the head of the fœtus was uppermost until the time of the coming on of labour. Although modern researches have shown, that in the latter part of pregnancy, in the great majority of cases, the head of the fœtus is found over the os uteri, obstetricians are not yet agreed as to the precise causes which produce this result. The mature fœtus in utero and the gravid uterus have commonly, since the time of William Hunter, been described as two ovals, the one accurately adapted to the other. Strictly speaking, the fœtus and uterus are pyriform rather than oval; but the fœtus and uterus are each composed of two oval, rather than circular, figures. In the fœtus, one oval is formed by the head, and the other by the body and limbs of the child. These parts correspond with the two ovals, into which the developed cervix and the developed body of the uterus may be divided. The lower oval of the fœtus—that is to say, the head—is little compressible, while the upper and larger oval is

greatly so, during the progress of labour; and thus, having in view their different degrees of compressibility, the cranial oval may be considered as the larger or more permanent of the two. Bearing these circumstances in mind, it will, however, be convenient to speak in general terms of the fœtus and uterus as ovoid. The lower end of the foetal ovoid is formed by the vertex, the upper end by the nates. The outline of one side of the oval is formed by the occiput, the back of the neck, and the incurvated spine; the other, by the forehead and the mass of contracted limbs gathered up together. The chin is close to the sternum, the arms are crossed upon the breast, and the thighs are bent upon the trunk, so that the knees approach the elbows in front of the abdomen; the legs are bent upon the thighs and decussate each other, the feet approaching the nates. The position of the extremities, particularly of the upper limbs, varies, however, in different cases. (Fig. 76.)

We possess satisfactory proof that the child assumes the position with the head presenting, in the latter months of gestation, and that dead children do not assume this position with the same frequency as the living. The statistics of Dr. Collins extend to upwards of 16,000 children. In the living children, which exceeded 15,000, only 1 in 57 presented preternaturally, or otherwise than the head; while of upwards of 500 children born in a putrid state, 1 in 5 presented preternaturally. Dubois found that in births occurring before the sixth month, only 52 per cent. were head presentations; of those born during the seventh month, the head presentations increased to 68 per cent.; during the eighth and ninth months, to 76, and, at the full term, to 96 per cent. From an extended table made by Dr. Simpson, from the report of La Chapelle, Boivin, Clarke, and Collins, amounting, in the aggregate, to upwards of 84,000 cases, the proportion of cephalic presentations amounted to 96 per cent. Dubois obtained another important result similar to that deducible from the tables of Dr. Collins, by comparing the comparative fre-

FIG. 76.



Attitude of the mature fetus in utero.

quency of cephalic presentation in dead and living children. Of children born living in the seventh month, the head presentations were in the proportion of 83 per cent.; but in dead children born during the seventh month, the proportions were reversed, no less than 55 per cent. being preternatural presentations.

The chief causes to which the general presentation of the head in living children at the full term has been referred in modern times are, Physical Gravitation, Instinctive and Voluntary movements, of the fetus, and Reflex foetal movements.

No opinion respecting the cause of cephalic presentation has prevailed so extensively as that which referred it to Physical Gravitation. It was supposed that the weight of the head, as compared with the rest of the body, contributed to its subsidence in the waters of the amnion, and it was further believed that this tendency was increased by the insertion of the umbilical cord in such a manner as to leave the upper part of the body heavier than the lower, when suspended from the umbilicus. Dubois found, however, that in experiments in which the fetus was suspended in a bath, or in a receptacle having the shape of the uterus, it was not the head, but the scapula or the back which first touched the bottom. This was the result in dead new-born fetuses of various ages between the fourth and ninth month. Any argument drawn from the supposed suspension of the fetus by the cord is evidently worthless. The length of the cord is so great as to render any suspension of the fetus by the cord in the liquor amnii impossible. Moreover, if the cord were short, it is generally implanted not into the fundus, but into the side of the uterus. It is also found that twisting of the cord round the limbs or neck of the fetus exerts no influence upon the presentation, which it should do, if suspension by the cord contributed to the descent of the head. The drift of all fact and ar-

gument seemed, then, against gravitation as a cause of cephalic presentation in the fetus.

Recently, however, Dr. Matthews Duncan has advanced some interesting facts which claim for gravitation a considerable share in determining the intra-uterine foetal attitudes. Dr. Duncan has pointed out that when the mother is in the upright position the fetus lies in utero, at an angle of thirty degrees with the horizon. This plane of support is formed by the glabrous internal surface of the anterior wall of the uterus, and the abdominal parietes. When the woman is lying on her back, the child is still upon an inclined plane, having nearly a similar angle. The plane is now, however, formed by the vertebral column, the abdominal viscera, and the posterior wall of the uterus. It is only when the woman lies upon either side, that the fetus assumes the horizontal position. The greater part of the twenty-four hours is passed with the fetus lying upon one of these planes. In the upright position, and when the woman is in constant motion, the influence of gravitation, as far as it extends, must have greater scope than during the horizontal position. The mechanical tendency of the fetus is to slide down the plane, but this is resisted to some extent by the plane itself, and by the pelvis. This resistance, thus divided, forms the support of the fetus and of the gravid uterus. The fetus must be considered not as subsiding simply in water, but as sliding down a plane in an ovoid cavity surrounded by fluid. Under such circumstances, it is contended that the fetus must have a tendency to obey the laws of gravity, and, with the restrictions mentioned, to slide down the plane. The objection to this is, that in women who preserve the horizontal position during the whole of the latter part of pregnancy, the head presents; but cases of this kind are not sufficiently numerous to found a positive argument upon them.

One argument used against foetal gravitation is, that the head does not present with the same frequency in cases of hydrocephalus, as in the case of the healthy fetus. Dr. Simpson dwells upon the increased weight of the bones of the head and its contents, and shows, by a collection of such cases by Dr. Keith, as many as 1 in 6 present preternaturally,—the proportion in ordinary cases, it will be remembered, being only 1 in 57. Dr. Duncan points out that it is the relative weight of the head in hydrocephalus, as compared with the density of the liquor amnii, which must be considered. Though heavier in air, it is probably more buoyant in water, than the normal foetal head. To this it may be added that the size of the foetal hydrocephalic head is frequently such as to render its descent into the pelvis, and its presentation at the os uteri, impossible.

But the strongest evidence against the theory of gravitation was that derived from the greater frequency of preternatural presentations in dead, as compared with living children. It was argued that the dead child ought to obey the laws of gravity as readily and accurately as the living. But it seems to have been forgotten that death

may possibly alter the specific gravity of the fœtus. Dr. Duncan found, as the result of fourteen experiments, that when the healthy still-born fœtus is placed in fluid of its own specific gravity, it floats obliquely with the head lowest, in a position corresponding to that which it maintains in utero. He further observed, that in cases where the child has died in utero, before the time of birth, changes occur which make it float with its head highest, in a fluid of its own specific gravity. This circumstance, he suggests, may have some influence in determining the frequency of malpresentations in the case of dead children; but he admits that a more extended course of experiments will be necessary before full confidence can be claimed for such results. The ingenious observations and experiments of Dr. Duncan, and the way in which he has met and controverted the objections to the recognition of fœtal gravitation as a cause of position in utero, must carry considerable weight. It is quite evident that gravitation cannot be omitted from the several influences which determine the natural presentations of the fœtus.

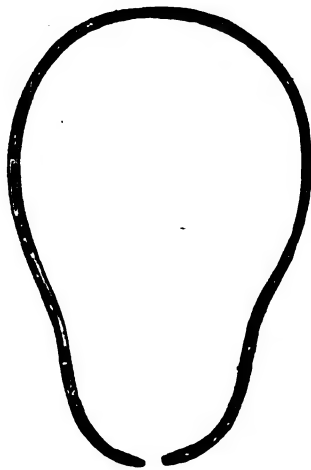
The latest exponent of the theory which refers the natural presentation of the fœtus to Instinctive and Voluntary movements on the part of the fœtus itself, is M. Paul Dubois, who wrote a very able essay upon this subject in 1832. Dubois, excluding the influence of gravitation, compared the power which leads to the assumption of the position of the fœtus with the head opposite to the os uteri to the instinct which leads the bird to build its nest. He supposed that the fœtus, moved by an irresistible impulse, effects the descent of the head, so as to render it the presenting part, by a series of small volitions or spontaneous determinations, occurring during the latter part of pregnancy. The chief argument in favour of the possession by the fœtus of sensation, and possibly of volition, urged by this able obstetrician, is drawn from the harmony which he believed to exist between the movements of the fœtus and the objects which they were presumed to effect. Had he written after the reception of Dr. Marshall Hall's great discovery of the spinal or physical movements, as distinct from the cerebral or physical motor actions of the animal economy, he would probably have referred the motor powers of the fœtus to reflex action, instead of to instinct or volition. Dr. Simpson, coming after Dubois, has taken reflex action as the clue to the fœtal movements, and has shown that we have no evidence whatever that the fœtus possesses any manifestations which may not be attributed to purely physical causes.

Dr. Simpson, in a series of elaborate and original papers in the *London and Edinburgh Monthly Journal* for 1849, maintains that the fœtus in utero is subject to a constant succession of Reflex Motor actions, which are the chief cause of cephalic presentations. Dr. Simpson recognises the ovoid outline of the uterus, and the ovoid shape of the fœtus, as greatly tending to maintain the fœtus in the uterus with the smaller end of the ovoid downwards; but he does not consider that the relations between the form of the fœtus and the form of the

uterus would of themselves be sufficient to produce the position, with the head over the os uteri. He believes, on the contrary, that "the regulating vital power guiding it to the assumption of that normal position in which its figure corresponds as exactly as possible to the figure of the uterine cavity, consists of a succession of reflex or excitomotor movements of an adaptive kind on the part of the fœtus, excited by impressions made on its external surface." The physical stimuli causing these movements are referred to temporary irritations of the cutaneous surface of the fœtus by contact with the uterine walls, when the fœtus is thrown out of position by any movements or change of position on the part of the mother, such as rising or lying down, stooping, and other motions of the body. Dr. Simpson points out, that the soles of the feet, the knees and sides, parts which in the adult are marked exciters of reflex action, and which in the young child yield the sensation of tickling, are precisely the parts exposed to irritation in the fœtus. Arguing from these considerations respecting the cause of the normal presentation of the head, Dr. Simpson contends that the causes of mal-presentation are the occurrence of labour before the reflex actions have established the natural position; the death of the fœtus—in other words, the loss of its adaptive reflex actions; the causes altering the shape of the fœtus or uterus, or physical sources of displacement, such as by hydrocephalus, monstrosities, dropsy of the amnion, uterine spasm, tumours of the uterine walls, placenta prævia, distortions of the pelvis, and accidents occurring to the mother. Finally, Dr. Simpson indicates that in the reflex movements of the fœtus lie the reasons of the rarity of positions of the fœtal head in the direct diameters of the brim of the pelvis, and their great frequency in the oblique diameters, particularly the right oblique diameter, and the greater relative frequency of occipito-anterior to that of occipito-posterior presentations. In these papers, Dr. Simpson refers to the influence of tone as moulding the form and figure of the fœtus, but he takes no account of the uterine movements in the latter part of pregnancy, and repudiates gravitation as a cause of fœtal position. Dr. Simpson illustrates his views by a series of admirable engravings, showing the outline of the uterus and the fœtus under different conditions.

In my Lecture "On Parturition," published in 1848, before the appearance of Dr. Simpson's papers, while discussing the abdominal movements of pregnancy, I endeavoured to draw a distinction between the movements of the fœtus and those of the uterus. I pointed out that many of the movements commonly attributed to the fœtus really belong to the uterus. I admitted that the fœtus moved in obedience to reflex stimuli, but I supposed these reflex movements to be faint and obscure because of the provisions which shield the fœtus from reflex excitation. I believe I underrated the extent and influence of the fœtal movements; but after the best consideration I have been able to give the subject, I think Dr. Simpson has attributed to the reflex movements of the fœtus

FIG. 77.



Outline of the ovoid uterus.

FIG. 78.



Ovoid form of fetus at full term.

FIG. 79.



Adaptation of fetus to uterus.

FIG. 80.



Position of twins in uterus.

FIG. 81.



Adaptation of hydrocephalic fetus.

FIG. 82.



Adaptations of fetus and uterus in breech presentation.

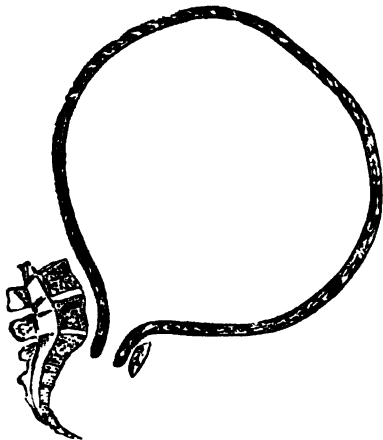
results, in the production of which other agencies play a very considerable part.

FIG. 83.



Fœtus and uterus at fifth month.

FIG. 84.



Form of uterus in deformed pelvis.

The ovoid shape of the fœtus, towards the end of gestation, depends in part upon the form of the uterus, and in part upon the muscular condition of the fœtus itself. As I pointed out, in 1848, the fœtus in utero is, when unexcited and at rest, under the spinal influence of what Dr. Marshall Hall calls "Tone," or the continuous influence of the *vis nervosa*; that principle by which the sphincters are kept closed in after life, and which causes the contractions in limbs which are deprived of the influence of volition in cerebral paralysis. Under this influence, the stronger flexor muscles having more power than the extensors, the body of the child is slightly bent as it is in the adult, in the recumbent position when volition is at rest, as in sleep, and the arms and legs are contracted. This contracted state of the arms and legs, in the fœtus, depends upon an active condition of rigidity; and we see that, after birth, it is often difficult to straighten the limbs—their natural position—until the influence of volition has gradually acquired power, being an approach to that which obtains in utero. In the lower animals, the limbs, under the

same influence, are straight instead of curved, the fore limbs especially being stretched out rigidly on each side of the head. This is as necessary to healthy parturition in the lower animals, as the contraction of the limbs in the human fœtus. The principle of tone, then, in the human fœtus, tends to preserve the ovoid shape of the fœtus, and it also tends to keep the child perfectly still and motionless. This continued influence of tone tends to maintain the fœtus in a passive state, and under the influence and control of the containing uterus. It is quite as important in maintaining the position of the uterus as the reflex actions are in restoring it, when this has been disturbed by change of position, &c.

In 1850, I performed some experiments with a view to determine the particular reflex movements manifested by the fœtus in utero under irritation. I took a rabbit nearly ready to kindle, and having placed it under chloroform, and fastened it to a table, opened the abdomen, so as to expose the uterus. I now made an incision into the uterus opposite the situation of a fœtus, so as not to wound the amnion, or to interfere with the placental attachment. In this way the fœtus was exposed in the transparent amnion without being injured in any way, the circulation in the cord not being at all interfered with. I found that when any part of the fœtus was irritated through the amnion, the fœtus would draw up its limbs, and shortly afterwards returned to the ordinary quiescent state. The one movement which constantly occurred, whether the ears, extremities, or tail were pinched, was a movement of the head, as in respiration. The mouth was opened and shut again once or twice, in a way somewhat similar to the movements of the mouth and head of a kitten while drowning. No liquor amnii appeared to be swallowed, and no movements of deglutition were attempted. I repeated the experiment several times with the same result. The respiratory movement affected the whole of the upper part of the body, but no inspiration or expiration occurred. It appeared to me that these imperfect respiratory movements must occur with every movement of the fœtus, and that movements of respiration do not occur, as is supposed, for the first time, after birth. This would account for the curious phenomena of Vagitus, in which, when air reaches the mouth of the fœtus, a cry is produced before the expulsion of the head of the child.

The supposed reflex fœtal movements of pregnancy have been felt in cases of amyelitic fœtuses, when the spinal marrow, and as a consequence, all reflex movements, are absent. I quoted in my former Lectures a case of this kind from Lallemand, in which the spinal marrow was entirely wanting, but in which the supposed fœtal movements were present. Since that time two cases have been supplied to me, one by Mr. Hoadley Gabb, of Hastings, and the other by Professor Zaviziano, of Corfu, in which there was congenital absence of the brain and spinal marrow, but the intra-abdominal movements of pregnancy were profuse in both cases. I pointed out that in the state in which

the foetus exists in utero, constant excitation and motion would exhaust the foetus. Professor Simpson compares the foetus in utero to a decapitated frog, but the frog in this condition is speedily destroyed by excitation. I mentioned that in the common experiment of placing the hand in cold water, and then applying it to the uterus, the resulting movements must necessarily be reflex movements of the uterus, excited by the irritation of the excitator nerves of the skin, which we know happens very readily after labour. It is impossible that the influence of this cold hand could be transmitted to the foetus through the abdominal walls, the uterus, and the liquor amnii. The same explanation applies to the movements caused by taking food or drink into the stomach, or the sensation of hunger. The movements excited by touching the feet, in footling cases, are feeble. The motions produced by lightly irritating the feet of a sleeping infant are inconsiderable, and the soles of the feet are well known to be the most excitable part of the cutaneous surface. We may observe after death evidence that in some cases the foetus has been quiet for some time before birth. The legs of the foetus may indent each other when they have lain across, or the mark of the hand is left on the side of the head. If the movements of the foetus were so considerable as have been supposed, we should expect incessant movements during labour.

No experiments can imitate, even to a tolerable degree, the conditions of the foetus in utero. Suspending the mature dead foetus in a similar fluid with the liquor amnii, when placed within a vessel having the shape of the gravid uterus, fails in many of the essential conditions belonging to the living foetus in utero. In the early development of the embryo, the limbs are deficient in muscular power, and do not assume any definite form. The nervous system has hardly commenced its control over the as yet feeble muscles. The quantity of liquor amnii is very large in proportion to the size of the uterus, and the uterus is circular rather than ovoid in shape. We have to consider these elements as slowly altering from day to day in an almost inappreciable manner, during the middle and latter months of pregnancy, and while the foetus is gradually taking up its ultimate position. The limbs of the foetus enlarge, becoming subject to the influence of the *vis nervosa*, and under the influence of tone, the arms and legs, particularly the latter, become contracted, so as to form the foetal ovoid. During this time, the relative quantity of the liquor amnii diminishes, so that at the full term the liquor amnii scarcely does more than fill up the interstices left between the foetus and the uterus. Synchronously with these events, the uterus itself, by the development of the cervix, changes from the circular to the pyriform or ovoid shape. With this change of shape, the uterus acquires more power of muscular contraction, and becomes the subject of reflex and peristaltic actions. The contractions of the uterus necessarily exert a moulding or adaptive influence upon the foetus, poised lightly as it is in the liquor amnii, and

moved within the limits of its prison by the slightest impetus. These causes are probably aided by the reflex movements of the foetus itself. Under irritation, the limbs of the foetus strike out, but only to return more closely to its ovoid shape, and to accommodate itself as accurately and easily as possible to the uterine cavity. All these influences, combined with the effects of gravitation and of the inclined planes upon which the foetus rests in the upright and recumbent positions of the mother, arrange and preserve the foetus in the normal position with the head at the os uteri. No single power, however, gives its attitude or position to the foetus, and it is difficult, amidst such a number of adaptations, all contributing to the same end, to single out the most important. If we give the predominance to any one of them, I think the spinal principle of Tone must be considered as the most influential, and it is to the absence of this, more than of any quality, that we must attribute the irregular presentation of dead children.

LECTURE XIX.

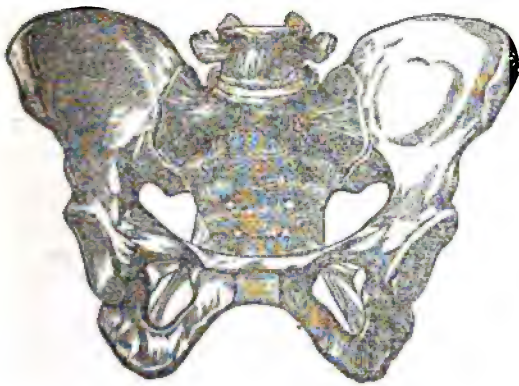
THE NORMAL PELVIS.

GENTLEMEN,—The individual bones and ligaments which enter into the composition of the pelvis scarcely require a detailed notice, and it will be unnecessary to revert in this place to their configuration or exterior connexions. Attention will be confined to the interior of the pelvis, and to the normal relations of the salient osseous points of its exterior anatomy. Under the first head will be included the pelvic Planes, Axes, Angles, Diameters, and Canal, while the second will refer to certain external measurements, a knowledge of which is necessary to a ready diagnosis of special internal malformations, or general alterations of dimension and configuration. I have reserved the consideration of the pelvis to the present time, instead of introducing it into the early part of the Course, in order to connect it with the anatomy of the Foetal Head, and the Mechanism of Labour, which will form the subjects of the two next Lectures.

As already stated, the pelvis is divided into two parts, a false and a true pelvis, the first situated above, and the second below, the *linea-elo-pectinea*. The relations of these divisions of the whole pelvis to utero-gestation and parturition are very unequal, and in cases where the false pelvis is malformed, the distortion of the true pelvis co-exists to such an extent as to render the deviations above the brim comparatively unimportant. We must look for the interest of the false pelvis, not in its immediate relations to the passage of the foetus through the pelvic canal, but in its functions as the supporter of certain viscera, as a fixed point for the action of numerous muscles concerned in parturition, and as a tolerably correct indicator of the condition of the true pelvis.

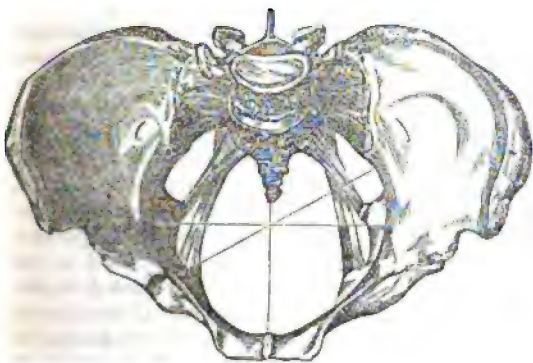
The true pelvis, or *bassin petit*, as it is termed by French obstetricians, is situated below the *linea-elo-pectinea*, which circumscribes its superior orifice or inlet, and has its inferior opening or outlet, bounded in part by osseous, and in part by liga-

FIG. 85.



mentous structures. In the middle line posteriorly, the outlet is formed by the coccyx, and by the great sacro-sciatic ligaments laterally and behind; the tuberosities of the ischia are its extreme lateral boundaries, and the conterminous rami of the ischia and pubes form its anterior-lateral confines. The pelvic canal lies between the above limits, and within this canal are situated the rectum, bladder, and ureters; the internal iliac arteries and veins, with their subdivisions; the lymphatics; the sacral plexus in whole, and the lumbar plexus in part; and certain muscles visceral and femoral. In the unimpregnated female, it also contains the uterus and ovaries, and during utero-gestation, a varying portion of the lower portion of the gravid uterus and its contents.

FIG. 86.



Brim of pelvis. Transverse and oblique diameters marked.

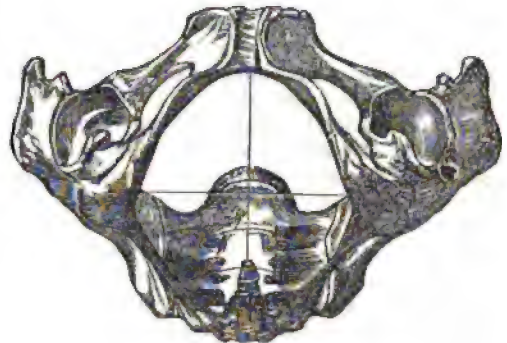
The Diameters of the pelvis are measurements taken in the three planes which have been described. The other dimensions necessary to be known are the depths of the pelvis at different points, and the distances between several of its spines and tuberosities. Beginning with the diameters of the superior plane or inlet, we have the long or transverse diameter, the antero-posterior or conjugate diameters, and the right and left oblique diameters. In the mid-plane we have the same diameters to consider, but the oblique is now the longest diameter. In the inferior plane, the longest of the diameters is the antero-posterior. In referring to the statements of the most eminent authorities, an

immense variety of measurements will be found, but the range of variation, with few exceptions, is not very great; and with regard to the greatest extremes, nothing is met with that does not probably result from the accidental omission or admission of very large or very small pelvis into the calculation. An average struck from the combined observations of Duncan, Burns, Monro, Meckel, Watt, Velpeau, Moreau, Boivin, Baudelocque, Ramsbotham, Rigby, and Wood, gives us the following results.

	Transverse.	Oblique.	Ant. posterior.	
Superior Plane ..	5.2	4.8	4.25	} Inches.
Middle Plane ...	4.75	5.2	4.7	
Inferior Plane ..	4.2	...	5.0	

This change in the longest diameter of the pelvis, from the transverse to the oblique, and from the oblique to the antero-posterior, gives to the pelvis the principle of the Screw—an idea we shall have to develop when we come to the mechanism of labour.

FIG. 87.

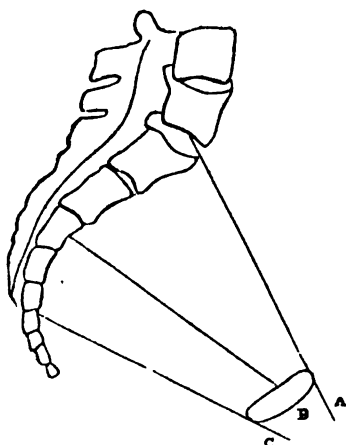


Outlet of pelvis. Antero-posterior and transverse diameters marked.

The Planes of the pelvis are imaginary levels extended between some of its corresponding points, the inclination of which to each other and to the horizon it is important to know. Only two of these planes have been generally deemed worthy of particular attention—namely, a superior and inferior plane, or plane of the inlet and outlet; but it is necessary to consider a third plane, situated between the other two, and which may be termed the mid-plane. To this plane especial study should be directed, because it is here that the rotations of the foetal head are impressed upon it, and here, under slight deviations from the normal condition, serious obstacles to parturition are encountered.

The plane of the inlet, or superior plane, is bounded by the linea-ileo-pectinea, and is inclined to the horizon at an angle of about 60° in the female, (Näsegle,) 65° in the male, (Weber.) That is to say, in the erect posture, and in the unimpregnated condition, these are the inclinations of the pelvic brim, inlet, or superior plane. During pregnancy, and more particularly towards the end of utero-gestation, when the weight of the gravid uterus and enlarged breasts upon the anterior arms of the levers represented by the *ossa innominata*, the obliquity of the pelvis is diminished by the

FIG. 88.

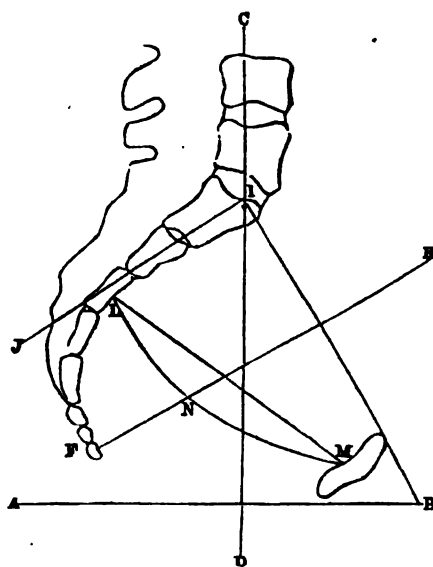


A, Plane of the inlet. B, Mid-plane. C, Plane of the outlet.

involuntary assumption of a position similar to that taken by persons in walking down a hill. The amount of diminution cannot be stated with precise accuracy, as it varies according to the length and flexibility of the spine, as well as the mobility of the sacro-iliac articulations, but it frequently amounts to several degrees. There is an evident adaptation of means to an end in the greater obliquity of the female as compared with the male pelvis, the approach of the internal surface of the symphysis pubis to the horizontal position being manifestly conducive to the support and retention of the comparatively heavy pelvic viscera of the female, and fitted to counteract the tendency to prolapse caused by the greater area of the pelvic canal. This might seem to be contradicted by the diminished obliquity which obtains during pregnancy. The gravid uterus rises, however, out of the pelvic cavity before the obliquity is materially altered, and prolapse thus becomes mechanically impossible, from the increased size and elevation of the uterus, when the ordinary provisions for support cease to be in operation. The elevation of the sacral promontory above the upper margin of the symphysis pubis, in the unimpregnated female, will of course depend partly on the obliquity of the pelvis, and partly on its dimensions. In the well-formed female pelvis, it is usually from three inches nine lines to three inches ten lines; and in the upright position, the sacral portion of the brim is a little below the antero-superior iliac spine. It is necessary to study the relations of the superior plane of the pelvis to the spinal column. The pelvi-vertebral angle—that is, the angle subtended by the superior plane of the pelvis, and the lumbar portion of the spine, forms an angle of about 150° . This angle varies slightly in different individuals, but is diminished somewhat by the ante flexion of the spine, and drawing up of the inferior extremities, which obtains in the obstetric position. The study of the above particulars may be facilitated by means of a diagram.

The mid-plane or strait, of the pelvis, unlike the superior plane, is not bounded by a line, all

FIG. 89.



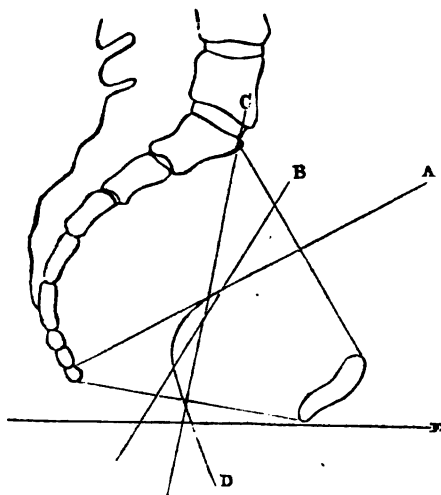
A B, Horizon. C D, Vertical.
 A B I, Angle of inclination of pelvis to horizon, equal to 80° deg.
 B I C, Angle of inclination of pelvis to spinal column, equal to 150° deg.
 C I J, Angle of inclination of sacrum to spinal column, equal to 180° deg.
 E F, Axis of the inlet.
 L M, Mid-plane of the middle line.
 N, Lowest point of m.d.-plane at the spine of the ischium.

the points of which lie in the same plane, and the term plane must not be taken therefore in an exact and mathematical, but in an obstetric and conventional sense. Its boundaries may be stated as follows: Commencing at the symphysis pubis anteriorly, at about the level of the upper margin of the obturator foramen, it crosses the obturator membrane immediately below the point of the exit of the obturator nerve and artery; from thence it descends the spine of the ischium along the oblique ridge on the inner surface of that bone. It then traverses the lesser sacro-sciatic ligament, and ascends to the level of the lower portion of the third piece of the sacrum. The straight line, L M, in the diagram represents its level in the mesial line; its lowest point is indicated by the letter N, situated at the lowest part of the curved line, and this corresponds to the apex of the ischial spines. The general inclination of this plane to the horizon is considerably greater than that of the superior plane—in other words it makes a less angle with the horizon, the difference being about 20° . The importance of the study of this plane will be more particularly dwelt on when speaking of the canal of the pelvis. (Fig. 90.)

The inferior plane, plane of the outlet, or inferior strait, is commonly described as extending between the lower margin of the symphysis pubis anteriorly, and to the tip of the coccyx posteriorly. There are, however, valid reasons for dismissing the coccyx from our calculations on this head; for being moveable, and potentially endowed with elasticity through the medium of its connexion with the perinæum, any influence it exerts upon

the progress of labour partakes of the nature of a force applied from without, and differs *toto caelo* from the rigid resistance of all other parts of the pelvis. The motion enjoyed by the coccyx is so great, that before it has reached its limit it ceases to influence the antero-posterior diameter of the outlet, and the mechanical conditions under which the foetal head escapes from the pelvis are then imposed by the apex of the sacrum. This is proved by the following measurements:—In a large female pelvis, the antero-posterior diameter of the outlet, measuring from the tip of the sacrum is 4.5 inches, and from the tip of the coccyx, 3.625. The amount of motion enjoyed by the coccyx equals one inch—that is to say, the coccyx can be pushed back one inch from its ordinary situation by the pressure of the foetal head and the action of the muscles in connexion with the coccyx. If we add this inch to the ordinary diameter, 3.625, we have 4.625 as the distance from the tip of the coccyx to the lower border of the symphysis pubis.

FIG. 30.



A, Axis of Superior plane. B, Axis of Mid-plane;
C, Axis of Inferior plane. D, Axis of Canal.
E, Horizon.

As this is greater than 4.5 inches, the distance from the last mentioned point to the extremity of the sacrum, it is clear that the sacrum, and not the coccyx, bounds the outlet of the pelvis, and determines how large a body shall pass out of it. The inclination of the plane of the outlet to the horizon, if the measurement to the tip of the coccyx be taken, is, according to Naëgele, from 10° to 11° . If the tip of the sacrum is taken as the osseous limit posteriorly, the inclination will not of course be so great, the angle being in this from 15° to 16° . The planes of the pelvis meet, if projected anteriorly, about 1.5 inch in front of and below the symphysis pubis. These several planes, it must be borne in mind, vary in their relation to the horizon and to the spinal column, but constantly preserve the same relations between themselves. The sacro-iliac articulations are not free enough to allow of any variation in the pelvic

planes. As a corollary to this, it follows that the axes of the planes of the pelvis must be fixed and determinate, and the course of the foetal head under normal conditions must be fixed and determinate also.

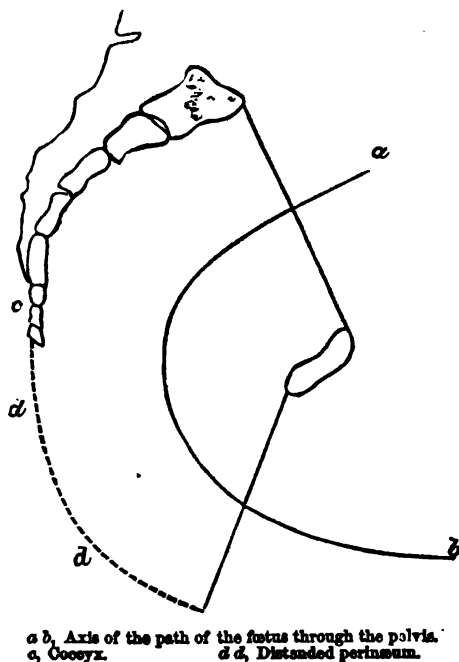
The axes of the pelvis are certain imaginary lines, drawn at right angles to the several planes of the pelvis. The axis of the superior plane or axis of the inlet, if prolonged and produced superiorly, will emerge from the umbilicus, and, inferiorly, will impinge upon the anterior surface of the coccyx, near its point. This line makes with the horizon an angle of about 30° . The axis of the mid-plane, if produced inferiorly, will fall upon a point rather nearer to the anus than half the distance between the anus and the tip of the coccyx; and superiorly, will issue some inches above the umbilicus. The angle made with the horizon by this line is about 50° . The axis of the outlet, when the point of the coccyx is not displaced by the egress of the foetus, falls from the promontory of the sacrum to midway between the tuberosities of the ischia, or to the anus if continued through the soft parts. The angle made by this axis with the horizon is about 80° . But, as already stated, it is better to consider the axis of the outlet as the axis of a plane extended between the inner margin of the symphysis pubis and the apex of the sacrum. Such a line would emerge, superiorly, a little in front of the sacral promontory, and, below, would fall a little behind the anus. There would also be a small diminution of the angle made by the axis of the outlet with the horizon. This represents the actual state of things during labour, when the coccyx is moved back, and the differences just enumerated necessarily follow.

These axes are all of them of importance chiefly as they bear upon the true axis of the pelvic canal, which represents the path traversed by the foetus in its passage from the maternal nidus to the external world. The axis of the canal is a subject upon which very diverse opinions have been held, and most of them evidence a wish for diagrammatic perfection rather than a patient observation of Nature. The study of the axes of the pelvic planes of the inlet and outlet, has led to much incorrect opinion, the axis of the canal being held to be identical with the axes of these two or three planes; whereas, the axis of the canal is identical with every imaginary intermediate plane from the inlet to the outlet, at the point where the axis cuts the plane. One observation will show the fallacy of representing the axis of the canal by the axes of isolated planes. The axis of the outlet of the pelvis, and the direction of the axis of the lower part of the pelvic canal, are usually confounded together, whereas they are totally distinct. The axis of the outlet is downwards and backwards, being at right angles with the inferior pelvic plane, while the produced inferior extremity of the axis of the canal, being the axis not of one plane but of many, looks downwards and forwards. It is difficult to conceive how such men as Muller and Roederer should have fallen into the error of making the pelvic axis a right line. Baug, Chou-

lant, Carus, and Camper represent it by means of an *arc de cercle*; and the circle of Carus finds favour at the present time with many obstetricians. Camper is, perhaps, the model of a mind addicted to diagrams; and, as is well known, he fell into diagrammatic vagaries about other things than obstetrics.

A rougher idea, again, of the direction of the pelvic axis could hardly be given than by endeavouring to express it by the meeting of the axes of the inlet and outlet; yet this is held by some. Levret caught a glimpse of the truth when he proposed to represent the value of the pelvic curve by perpendiculars drawn from three planes. Had he said thirty or three hundred planes, he would have been nearer the fact, the axis of the pelvis being in reality, as already stated, a curved line, passing through the centre of every linear plane between the plane of the inlet and the plane of the outlet. Of all recent authors, Dubois leaves least to be wished for in his description of the pelvic curve. We must be careful not to dislocate the curve of the pelvis from its connexion with other parts through which the fœtus passes. This curve is only complete when we have added to it the axis of the uterus above and of the distensible soft parts below. Collectively, the parturient line is expressed by an irregular parabolic curve, fixed from the brim of the pelvis to a line drawn from the inferior margin of the symphysis pubis to the apex of the sacrum, and variable from the fundus uteri to the pelvic brim, and from the outlet to the margin of the perinæum, according to the position of the uterus, and the facility with which the coccyx is pushed back or the perinæum distended.

FIG. 91.



The study of the axis of the inlet and of the outlet of the canal has important practical bear-

ings. In order that the uterus may act with the greatest efficiency in the first stage of the labour, where the motor force is required in the direction of the axis of the inlet, it is necessary that the axis of the uterus should correspond with the axis of the inlet. If the gravid uterus be antelected or retroflected from the true position, the progress of labour is impeded. If the axis of the uterus approaches the horizon, the foetal head is impelled against the promontory of the sacrum; if it approaches the perpendicular, it is urged against the pubes. The derangements of the axes of the uterus and pelvis have the same effect as distortion of the brim, only the difficulty is easily remediable. By bending the spine upon the pelvis, as in the usual obstetric position, we may depress the axis of the uterus; and, on the other hand, if it requires to be raised, it is necessary to support the uterus with a bandage, or place the patient on her back. It is necessary that we should recognize the direction of the axis of the outlet in examinations; in introducing the hand into the uterus; in assisting the birth of the head; and in all traction in midwifery operations of every kind.

The Canal of the pelvis is the most important matter in relation to this assemblage of osseous structures, and it is especially necessary to consider the walls of this canal, and the direction taken by the different portions of the pelvic parietes. It may be observed that the inner surface is made up of a number of smooth inclined planes, and that the inclination of these planes is so arranged as to accomplish two principal objects: one, a gradual alteration of the direction of the longest diameter of the canal: the other, a more sudden change in the direction of the planes themselves. Between the superior and middle planes of the area of the pelvis, we may observe in the pelvic walls of the inlet four inclined planes: of these, one is formed by the whole of the internal surface of the body of the pubic bones; and a second, by the upper half of the sacrum. The direction of both these inclines is downwards and backwards. The two other inclined planes are placed laterally, and are composed of the ilia and ischia, terminating in the spinous processes of the latter. The direction of these lateral spines is downwards, backwards, and inwards, so that at the spines of the ischia the walls of the pelvis approximate to each other more closely than they do at the commencement of the superior lateral planes, below the linea-ileo-pectina. The inclined planes of the outlet, as far as the bony pelvis is concerned, may be said to be five in number: one posterior and four lateral. The direction of the posterior, consisting of the lower half of the sacrum and the adjacent portions of the sacro-sciatic ligaments, is also downwards and forwards. Of the lateral inclined planes of the outlet, two, consisting of the internal surfaces of the ischia, below the level of the spinous processes, terminate in the tuberosities, and are directed downwards and forwards, and slightly inwards. The other two lateral planes of the outlet are formed by the descending rami of the pubic bones, and the ascending rami of the ischia; they extend from the middle of the arch of the pubes to

the tuberosities of the ischia, their direction being upwards, forwards, and inwards. If we considered the bony pelvis as a complete canal, it would be pinched inwards at the points of the ischial spines and tuberosities of the ischia, and bulged outwards at the sites of the great sacro-sciatic foramina. These circumstances, together with the shallowness of the anterior, or pubic portion, contribute to alter the diameters of the superior, middle, and inferior planes. The key to the pelvic mechanism, in an obstetric sense, may be said to be the spinous processes of the ischia. Here it is that the foetal head makes its most decided change of position. The changes of position and direction which bring the foetal head to occupy, at the outlet of the pelvis, the right oblique position, as the most common presentation, are effected mainly by the anatomical adaptations of the pelvis, aided by the mechanism of the foetus, and the position of the rectum in the notch by the side of the sacrum on the left side. (Fig. 92.)

The normal depth of the female pelvis, is, according to Burns, as follows: From the promontory of the sacrum to the tip of the coccyx, from 5 to 6 inches; from the brim to the tuberosity of the ischium, 3·75 inches; anteriorly, from 1·5 to 2 inches. The variations which obtain in this respect exercise a considerable influence upon the progress of labour. Deep pelves are often somewhat funnel-shaped, and shallow pelves are not merely wide in appearance, but wide in relation to the size of the body. If a pelvis be very much shallower than usual, the points of resistance to the passage of the foetal head are of course diminished in number, and the track of the foetus is materially shortened also: labour, under these conditions, is unusually rapid, unless there is co-existent distortion. It is well to bear in mind, that the shortest pelvic diameter is that between the two ischial spines (3·5 inches,) and the longest is an oblique diameter, extending between the sacro-iliac synchondrosis of either side to the tuberosity of the ischium opposite. This line is 6

With regard to the External Measurements of the pelvis, it may be stated that the same method of ascertaining the antero-posterior, lateral, and oblique diameters, which helps us so much to understand the cavity, will assist us in understanding them. The antero-posterior diameter of the pelvis, externally, is about eight inches; the external transverse—i.e., from crest to crest of the ilia—about 14 inches; the oblique—i.e. from the antero-superior spine of one ilium to the postero-superior of the other—about eight inches. These diameters are all in the same plane. There are other diameters in various planes, a knowledge of which is useful. For instance, from the spine of the last lumbar vertebra to the antero-superior spine of either ilium, 6 inches 7 or 8 lines; from the symphysis pubis to the infero-anterior spinous process, about 4 inches; from the tuberosity of either ischium to the posterior superior spine of the ilium of the opposite side, 6 inches 6 lines; from the great trochanter of either side to the postero-superior spine of the ilium of the opposite side, about 8 inches. These measurements are valuable, not because we can determine from them the internal pelvic diameters, but because, unless, the proportionate dimensions stated above are maintained, there must necessarily be an alteration in the size of the pelvis, or serious distortion. When speaking of deformed pelves, it will be pointed out how the diminution of each of these diameters is indicative of certain mal-relations between the pelvic bones.

LECTURE XX.

THE ANATOMY OF THE FŒTAL HEAD.

GENTLEMEN,—The anatomy of the foetal head, and the anatomy of the pelvis, are the elements of obstetric mechanics; and the behaviour of the former in the cavity of the latter, will, of course, depend upon the mutual relations of each. It is to the cranium of the foetus, however, that our attention is now directed. Speaking, in general terms, the head of the fully developed foetus is an irregular ovoid mass of very various diameters, and various compressibility, according to the diameters in which the compressing force is applied. It is attached to the neck in such a manner as to project posteriorly more than anteriorly; and it rotates upon this point of attachment to the extent of a quarter turn without any harm accruing to the infant. The bones of the head may be arranged into two systems: one, the bones of the cranium; and the other, those which compose the face and base of the skull. The bones of the face and base of the skull differ from those of the calvarium in being far more highly ossified; they are, in fact, so advanced in development as to be practically unyielding; and the adaptations, therefore, which exist between the configuration of this part of the foetus and the maternal skeleton are obtained either by the slight compressibility of the soft parts of the foetal face, or by special morphological conditions of the bones themselves. The bones of the face and base of the skull are early developed, and unyielding in their texture, in order to protect the

FIG. 92.

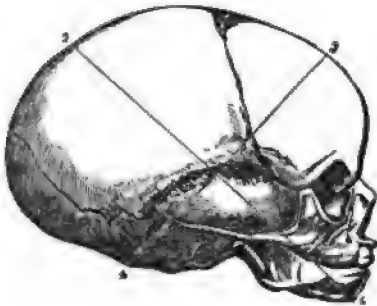


Side view of the pelvis.

inches in length, and corresponds very nearly in position with the long axis of the foetal head in an ordinary occipito-anterior presentation, when the head is fairly lodged in the cavity of the pelvis.

delicate organs of special sensation and important ganglia at the base of the brain from the injurious effects of mechanical violence during labour. The hemispheres of the brain perform functions the integrity of which is less necessary to life, require no such protection, and submit to considerable compression within their moveable case. It is interesting to remark, that the immovable portion of the bones of the head occupies such a position that a moderate force of compression applied to the opposite aspect of the cranium tends rather to increase than to diminish its capacity; according to the well-known law which provides that a spherical vessel contains greater bulk in proportion to its superficies than any other form or receptacle. The lower jaw in the fœtus is widely different from an adult maxilla, as may be seen by reference to the accompanying engraving; the ramus is short and oblique,

FIG. 93.



Mature fœtal skull.

and the empty alveoli of each jaw are thus permitted to come into actual contact, whilst the body of the bone is shallow; and thus by a combination of provisions, the fronto-mental diameter is kept within convenient limits. Were the chin pronounced, and the fronto-mental diameter consequently much increased, it would, in ordinary presentations, almost inevitably strike against the right side of the promontory of the sacrum, and prove an insuperable obstacle to the movement of rotation taken by the head in its descent through the pelvis. The diameters of the facial portion of the head are its smallest diameters, and adapt themselves to the smallest diameters of the pelvis. Thus the bi-temporal diameter, which is variable to a very slight extent, is little more than two inches and a half, the bi-malar diameter is barely three inches, and the bi-mastoid is not much over two inches. These diameters all pass through the cavity of the pelvis, between the spines of the ischia, in ordinary occipito-anterior presentations, as well as in those cases where the occipito-posterior presentations have passed into the former. The unyielding portion of the head might be represented by an oval plane, having one end at the back of the neck, and the other somewhat above the brow, whilst its conjugate diameter would nearly correspond with a line passing through the skull from ear to ear. It is evident that whatever terror an obstetrician might fall into as regards

the actual position of the head, from failing to take into account the moulding the calvarium undergoes *in transitu*, none can arise from this source as far as the face and ears are concerned. In cases of distortion or contraction, then, it follows that a recognised ear, or cheek-bone, will be a better index to the actual position of the head than any point in its more moveable part. Dr. Hamilton was of opinion that the compression of the cerebral hemispheres during labour produced a paralyzing effect upon the limbs of the fœtus, and tended to keep them motionless under the action of the uterus—an opinion shared in by Dr. Ramsbotham.

That part of the head which is called the skull-cap consists of the occiput, the parietal bones, and the frontal bones; the temporal bones scarcely require to be noticed. In the vast majority of cases, these bones are soft and semi-cartilaginous, and connected to each other only by the dura mater and scalp; their contiguous edges are bevelled off, and they may be made to overlap each other to a very considerable extent. Between the edges of contiguous bones are grooves called *sutures*; and where three or more sutures meet, there is a deficiency of bone, called a *fontanelle*. The arrangements for solidity in the face and base of the skull are not more conspicuous than the provisions made for plasticity here; in whatever direction compression is applied, it results in a modification of the contour of the head, partly because the bones bend, and partly because they overlap in various directions. As a general rule, it may be laid down, that in ordinary presentations the longer the head remains in the pelvis, the more ovoid will it become, always provided that the pelvis is not absolutely deformed. There is a considerable discrepancy between the estimates of dimensions given by various writers. Dr. Meigs is very positive in affirming that the estimate usually given of the occipito-frontal and occipito-mental diameters is far too low. It is not unlikely that much may depend upon the period when the measurements are taken, for certainly the cranium of a fœtus, immediately after what is vulgarly called a "hard labour," is materially longer than twenty-four hours later, and, it may be presumed, that before it has been subjected to the modelling process by which it attains its adaptation to the maternal passages. Confining ourselves, however, to average figures, which shall represent rather the relative diameters of the fetal head, than an exact estimate of each individual measurement, the following table may be relied upon as sufficiently accurate for all practical purposes. The really important consideration is not the absolute, but the relative, admeasurements of the skull; we are utterly unable, in any given case, to determine the magnitude of the body about to pass, and are therefore compelled to frame our mechanical appliances upon considerations of proportion.

1. The occipito-frontal diameter 4·5 inches to 4·75
2. The occipito-mental 5·0 " " 5·25
3. The trachelo-bregmatic 3·75 "
4. The sub-occipito-bregmatic 3·25 "
5. The transverse or bi parietal 3·5 "
6. The trachelo-frontal 3·25 "

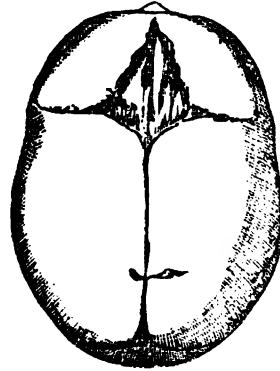
It will be observed that the two first of these measurements are particularly noticed as varying, and they do, in fact, vary as labour advances, being the direction in which the greatest range of alteration is admissible. The circumference of the head varies, of course, according to the direction in which it is taken. Thus, the ordinary presenting circumference, which passes under the occiput, and round the parietal bones, to a little behind the bregma, is about 11·5 inches, the occipito-frontal is rather more than 14 inches, and the occipito-mental is nearly sixteen inches. It is unnecessary to burden the memory with any further details on this head.

The sutures with which we are mainly concerned are the coronal, the sagittal, and the lambdoidal; the temporal sutures between the temporal bones and the inferior concave border of the parietal bones are comparatively uninteresting, because the ear is quite as easy, if not easier, to recognise in all cases where it is desirable to know the position of that part of the head. The coronal suture—so called because the ancients wore their triumphal crowns in that position—is the line of demarcation between the frontal and parietal bones; it extends transversely, and almost vertically, over the head, from the summit of the squamous portion of the temporal bone on one side, to a corresponding point on the other side; its line is broken by the great or anterior fontanelle. The sagittal suture projects directly backwards from the coronal in the middle line, and lies between the opposed superior borders of the two parietal bones; posteriorly it abuts upon the apex of the lambdoidal suture. The lambdoidal suture—so called from its resemblance to the Greek Λ —is formed by the opposed borders of the occipital and parietal bones: if two parietal bones are placed *in situ*, it will be seen that, owing to the obliquity of their posterior borders, an angular recess is formed where they meet; into this recess the occipital angle fits, and just between the superior angle of the bone and the angular recess alluded to, is the small or posterior fontanelle. There is a suture between the two divisions of the frontal bone which varies in width, but is always recognisable where it abuts upon the great fontanelle; the sagittal, coronal, and lambdoidal, are however the important sutures, and of these the sagittal is paramount.

The fontanelles are spaces between some of the cranial bones, into which the sutures debouch. British obstetricians generally take cognizance only of two; an anterior or greater, and a posterior or lesser. Continental writers speak of two others—the temporal; but as the finger could hardly impinge upon them unless the orbit were within reach also, it appears unwise to divert attention from the more to the less valuable aid to diagnosis. The anterior or greater fontanelle, or bregma, is a rhomboidal space into which two fingers may be easily laid; its long diameter is from before backwards, and the greater half of the rhomboid is in front of its lateral angles. The sagittal suture joins its posterior angle, the inter-frontal enters its

anterior angle, and the two halves of the coronal suture debouch into its lateral angles. The posterior or lesser fontanelle is small and triangular; it receives the sagittal suture into its anterior angle, and the two limbs of the lambdoidal suture into its lateral angles. The posterior fontanelle is the one with which it is most necessary to be familiar.

FIG. 94



Anterior and posterior fontanelle.

However easy it may seem at first sight to determine which suture or which fontanelle is touched in any given examination, beginners are very often mistaken, and there are some circumstances which may embarrass others than tyros. It may be as well to point out a few distinctions between each suture and each fontanelle. The sagittal suture may be recognised by its debouching into two fontanelles; the coronal by its joining a large fontanelle at one end, and leading to a more unyielding part of the cranium at the other; the lambdoidal by its joining only the small fontanelle. The anterior and posterior fontanelle, if they should happen to approximate in size to each other, may yet be distinguished by the anterior having four angles, and its four sides bounded by bony margins, which do not project into the space; while the posterior has but three angles, and the bones around it are the three acute apices of the occipital and two parietal bones. There is occasionally a false fontanelle in the course of the sagittal suture, the result of defective ossification in the opposed edges of the two parietal bones; if it is borne in mind, however, that only two lines of suture can be traced from such a space, it cannot be a source of any great difficulty. Before the membranes are ruptured, it may be somewhat difficult, when they are tough, to appreciate all the points of difference between the sutures and fontanelles; sometimes ossification is so abnormally advanced or delayed as in a measure to destroy the characteristics of the fontanelles; and when the bones of the head overlap each other very much during its passage through the pelvis, it may be matter of great difficulty to recognise anything very distinctly. The greatest difficulty in the way of accurate diagnosis is presented perhaps in those cases in which the membranes have been ruptured early, and the head has been long in the pelvis, tightly girt by a rigid cervix uteri.

Under these circumstances, the scalp becomes swollen, puffy, and infiltrated with serum and sometimes blood, and nothing can be felt distinctly through it; it may be almost impossible to pass the finger beyond the puffy tumour, so as to reach a part of the head covered by natural scalp, and such cases have been mistaken ere now for breech presentations.

FIG. 95.



Bi-parietal diameter; sagittal and lambdoid sutures with posterior fontanelle.

There are some general considerations connected with the size of the foetal head which are worthy of attention. In the first place, it must be remembered that the average dimensions of the male foetal head are considerably greater than those of the female; the excess in the circumference which most commonly presents is about half an inch, and this is quite sufficient to make a serious difference both in the chances of danger accruing to the infant and the mother. The question of safety to mother and child is very much a matter of time; whether the delay results from rigidity of the passages as in primiparae, or from greater size of the head as when the foetus is masculine, the result is pretty nearly the same. The late Dr. Joseph Clarke, of Dublin, a very distinguished accoucheur, investigated very minutely the question of the difference of the size in the brain of the two sexes at the time of birth. He ascertained, by the admeasurement of a large number of cases, that the circumference of the male head is greater by half an inch, or about the twenty-eighth part of the entire circumference, than the female head, at the time of birth. The fact that the male foetal head is actually larger than the female having once been established, all the disastrous consequences of which Prof. Simpson has given statistical proof follow as inevitable. In cases of tedious labour, convulsions, puerperal convulsions, puerperal fever, ruptured uterus, hæmorrhage, and instrumental delivery, by far the greater number of children are males. In cases of pelvic abscesses, ruptured perinæum, and vesico-vaginal fistula, the same undesirable pre-eminence attaches to male children. The following are the principal conclusions of Prof. Simpson:

1. Of the mothers that die under parturition and its immediate consequences, a much greater portion have given birth to male than to female children.

2. Of still-born children, a larger proportion are male than female.

3. Of children born alive, more males than females suffer from the morbid states and injuries which result from parturition.

4. More males than females die in the early period of infancy, and the disproportion diminishes from birth to some time afterwards.

5. More dangers occur, both to mother and infant, in first than in subsequent labours.

6. Of children which die in utero before labour as many are females as males.

7. Of the accidents which happen after the birth of the foetus itself, as many occur with female as with male children.

There are other aphorisms on this question, laid down by the same authority, but they are only corollaries of the foregoing propositions, and need not, therefore, be stated.

Besides the effect of sex in modifying the size of the foetal head and increasing the pain and danger of parturition to the mother and child, we have to consider the effects of race and civilisation upon the head of the foetus at the time of birth. All ethnological researches tend to show, that, with the advance of civilisation, the human head has increased in size. The oldest crania in existence, much older than the mummies of Egypt, are the skulls found in various parts of the world in diluvial caves, with the fossil remains of extinct animals. These skulls apparently belong to other races than those which now inhabit the countries in which they are found; they have a small development of the brain, and resemble the skull of the Carib in flatness of the frontal bone. The heads of Peruvian and Egyptian mummies are considerably below the size of the European cranium. Nothing within the range of human anatomy stands in a stronger contrast than the cerebral size and development of the New Hollander, or the Bushman, and the Caucasian races. The different condition of education amongst different classes of the same race also has its effect on the size of the brain and cranium. Hatters state that the size of the head is greater in the same classes in towns, than in agricultural districts, in the educated than the uneducated. Tiedemann gives from 3lbs. 2oz. to 4lbs. 6oz. troy weight as the average weight of the adult male European brain; but he found that of Cuvier weighed upwards of 4lbs. 11oz., and that of Dupuytren 4lbs. 10oz. The same authority gives the average weight of the female brain as from 4 to 8oz. less than the male; and he found the different size of the male and female brain was perceptible at birth, in this according with the views of Dr. Joseph Clarke and Dr. Simpson. The increase is not confined to the head alone. Dr. Clarke found that, on the average, taking the whole body, males weigh 9oz., or nearly one-twelfth of the entire weight more than females. It seems a clear inference, that the brain and head of the uncivilised and the uneducated must be, on the average, smaller than those of the educated and civilised; and we have seen in the comparison of the male and female head at the time of birth, how small a difference in the size of the foetal head is sufficient to increase the dangers and, necessarily, the

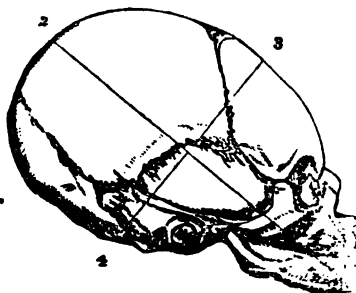
sufferings of parturition. Dr. Simpson is of opinion that the comparative difficulty of parturition with male and female children extends to the foetus of civilised races, and he refers the increased suffering of the civilised woman in childbirth to the size of the foetal head. Some writers have expressed the opinion, that savage women do suffer as much or nearly so, as the women of civilised races. But the general bearing of all the knowledge we possess on this subject, supports the view, that barbarian women suffer far less than women in a state of civilization. The size of the foetal head must be considered the most important element in this matter, though at the same time there is the greater sensibility induced by the habits and social condition of the civilised and highly-cultivated female to be taken into account.

Civilization not only influences the size, but the relative size of the different parts of the foetal head. In uncivilized races the tendency is to increase the occipito-mental diameter, by the protuberance of the occiput, and the greater development of the lower part of the face, and to diminish the occipito-frontal diameter by the flattening of the frontal bone and the low development of the anterior cerebral lobes. The diminution of this diameter must lessen the difficulty in the passage of the foetal head. In the case of a Negress, whose labour I had the opportunity of witnessing, the great mass of the foetal brain was behind the auditory foramen, the foetal head having the shape represented in Fig. 96.

Other influences, besides civilisation and education, have an influence upon the size of the head. The Caribs flattened the foreheads of their children, and the continuance of this practice through succeeding generations produced a natural flattening of the anterior part of the head, until the Carib infants were born with flat heads. The practice of flattening the head prevailed in Mexico, and, at an early date, in the eastern parts of Europe. Hippocrates gives an account of the Macrocephali, a Scythian race believed to have inhabited the Crimea, of whom the Father of Physic says:—"There is no other race of men which have their heads in the least resembling theirs. At first, usage was the principal cause of the length of their head, but now nature co-operates with usage. They think those the most noble who have the longest heads. It is thus with regard to the usage: immediately after the child is born, and while its head is still tender, they fashion the head with their hands, and constrain it to assume a lengthened shape, by applying bandages and other suitable contrivances, whereby the spherical form of the head is destroyed, and it is made to increase in length. Thus at first usage operated, so that this constitution was the result of force; but in the course of time it was formed naturally, so that usage had nothing to do with it." Mr. Adams, the learned translator of Hippocrates, cites some researches of Dr. Ratlike, as affording a remarkable corroboration of the preceding observations. Certain tumuli have been excavated in recent years at Kertch and there were found in them several

skeletons, in which the form of the head was greatly elongated, so as to resemble the shape described by Hippocrates in the Macrocephali. It has been suggested that one object had in view by the races accustomed to flatten the head was, that of producing a shape favourable to easy parturition. Binding the heads of children upon a board is practised in some parts of Europe at the present day. I have seen Polish infants arranged in this manner apparently as a mere fashion or habit. The round head of the Greek and Turk are believed to have been in part produced by the effect of the national cap and turban, continued through successive centuries.

FIG. 96.



Skull of a Negro foetus.

Clinical Lecture

ON

SOME DISEASES OF BONE

REQUIRING THE

USE OF THE TREPHINE.

BY JOHN ERICHSEN, Esq.,

PROFESSOR OF SURGERY AT UNIVERSITY COLLEGE AND SURGEON TO THE HOSPITAL.

GENTLEMEN,—I wish to direct your attention to-day to certain diseases of bone requiring the use of the trephine which have been brought under our notice by a case on which I operated very recently.

There are certain morbid conditions of bone characterized thus:—

1. The bone, usually a long one, generally and slowly becomes enlarged near its articular end, and in this condition may remain for a very long time, for months or years, before it is subjected to surgical interference.
2. This state is accompanied by pain of a peculiar character; it is gnawing and tensive, intermittent, sometimes very markedly so, often being absent for weeks, and then returning; it undergoes nocturnal exacerbations.
3. On a careful examination of the bone, it will be found that there is one spot more tender than the rest about the seat of disease. This tenderness is usually persistent, even though the spontaneous pain may be markedly intermittent. These are the general characters of a disease of bone, which may arise from very different pathological con-

ditions, though the symptoms resulting from these are generally such as have been described. These symptoms are referrible to the expansion of the osseous tissue by the formation of fluid within it, or by its compression from inflammation.

The chief seat of these symptoms is the articular ends of the long bones, especially of the tibia. We may arrange their order of frequency thus—1st, lower end of tibia, just above ankle-joint; 2nd, upper end or head of tibia; 3rd, lower end of humerus. The frequency with which they are met in the other bones varies, and has not yet been brought under any rule.

The affection appears to depend on four pathological conditions, most of which have been recently met with in the wards of this hospital.

1. *Chronic circumscribed abscess* appears to be the most frequent pathological condition, giving rise to the peculiar train of symptoms just mentioned. Sir Benjamin Brodie first called attention to this point, and indicated the treatment which it is proper to adopt in these cases—viz., the application of the trephine. He has brought forward several successful cases in support of his opinion. His ideas and observations have since been confirmed by Mr. Stanley and other recent writers on the subject. When arising from this cause, the disease exists for a long time, giving rise to an aching, gnawing pain, with nocturnal exacerbations, and it is only when closely examined by the surgeon that any local tenderness can be detected in the part affected. In some cases this abscess is of a truly inflammatory nature, and the contents are of a purulent character. In others it appears to be more or less connected with the deposit of tubercle in the cancellous tissue, which, having softened, gives rise to the formation of a cavity or vomica, resembling those formed in the lung in tuberculous disease of that organ. These tuberculous vomicæ in the articular heads of long bones play an important part in joint diseases. We had an excellent illustration of their destructive effects when opening into a joint in the case of James A—, who was admitted into the hospital last month. For many years previously he had suffered intermitting aching, gnawing pain in the head of the tibia. One day, after unusually exerting himself, he felt something give way in his knee, and next day the joint swelled up, and he suffered violent pain in it. Suppuration and hectic set in, followed by destruction of the cartilages of the joint. After amputating the thigh, I found a cavity in the head of the tibia, evidently of tuberculous origin, which had gradually worked its way upwards, and opened into the knee-joint, and the discharge of whose contents had been the cause of the destructive arthritis.

In such cases we may be led to suspect the presence of tuberculous deposit, from its existing elsewhere, from the patient presenting the usual indications of its strumous diathesis, or from the long continuance of the suppuration either above or below the joint. From the case just mentioned, and many others which might be brought forward, we are forced irresistibly to the conclusion that

the softening of tuberculous deposit is a frequent cause of the circumscribed abscesses in bone.

The following case is a good illustration of the course and treatment of a chronic abscess of a long bone:—

A woman was admitted under my care at this hospital in the month of January, 1853, in whom the following conditions existed:—There was a chronic enlargement of the lower end of the right tibia, just above the ankle-joint; this was attributed to a blow which she had received there ten years before, from which time the swelling and pain dated. The enlargement was not considerable. She had suffered, and did then suffer, from much aching pain of an intermitting character at the seat of the enlargement. On careful examination, one tender spot was found about two inches above the ankle-joint, and, though the spontaneous pain was intermitting, the tenderness on pressure at this particular spot was constant. Looking on the case as one of circumscribed abscess of the lower extremity of the tibia, I cut down upon and exposed the bone opposite the seat of tenderness. On removing a circular piece of bone with the trephine, some dark purulent fluid escaped, and it was found that a cavity had been opened in the tibia that had contained thick pus, and around its walls was a layer of black carious bone; this I gouged out. The cavity was then stuffed with lint, and allowed to granulate from the bottom. A perfect cure was the result. This was a typical case. Here we had a chronic swelling of the articular end of a bone, attended with intermitting pain; we cut down, apply the trephine, open into a cavity filled with pus and carious bone, clear it out and allow it to fill up with granulations, and a perfect cure results on the cicatrization of the wound.

2. The second pathological condition giving rise to the symptoms we are now considering is *chronic osteitis*. Here the bone becomes enlarged in size and much denser, and the inflammation does not go on to suppuration. In these cases, intermitting pain, of a very severe character, with nocturnal exacerbations, frequently exists. Sometimes it would appear as if the pain was due to stretching of the periosteum, and then a simple division of the soft tissues down to the bone is sufficient to give immediate relief. This is illustrated in a case of chronic osseous nodes, attended with severe pain, due to the stretching of the periosteum; here the pain will be at once done away with, by a division of the fibrous membrane down to the bone. In other cases the pain seems rather due to the mischief in the bone itself. In these cases the bone is enlarged, very dense and hard, and probably this condition is the cause of the pain by preventing all further expansion, and by the compression it exercises on the internal parts. Here division of the periosteum is of no avail in relieving the pain, but by applying the trephine, and removing a circular piece of the hard external osseous tissue, the tension will be relieved, and a cure will be the result.

In such cases, in addition to the local treatment recommended, the chronic inflammation may be combated by a course of iodide of potassium.

3. The third pathological condition attended with the same train of symptoms is that of a *cyst* situated in the osseous tissue. Cysts occasionally form within bones, and give rise to much annoyance, constituting, in fact, formidable tumours. They chiefly occur in the lower jaw, and there the proper treatment is to cut down, apply the trephine, stuff the cavity with lint, and allow it to granulate from the bottom. This disease I have met with in the articular end of one of the long bones, which is certainly not so usual a situation for it to form in. In the particular instance to which I refer, the cyst was situated in the lower end of the humerus, just above the external condyle. The following are some particulars of the case:—

George S—, aged fifty-six, coachman, was admitted into University College Hospital on the 20th of June, 1853, on the recommendation of Dr. Pretty; he is a robust man, enjoying good health. About ten months before admission he observed a slight swelling above the external condyle of the right humerus. No pain was felt till after it had gradually increased in size for five months. He then began to suffer so much from it that he was obliged to give up his business as a coachman. He was seen by me in February, 1853, as an hospital out-patient. Looking on it as a case of chronic inflammation of the fibrous and osseous tissues, I ordered iodide of potassium internally, and the local application of issues. This treatment was, however, unattended with benefit.

On the 22nd of June, 1853, thinking it advisable to ascertain the exact nature of the enlargement, I cut down upon and removed a soft piece of bone with a trephine. The wound healed up, and the patient was discharged. This operation was attended with only a temporary mitigation of the pain. Some time after his discharge the pain returned, and gradually increased until it was worse than before, and the swelling became greater.

Re-admitted into the hospital on the 10th of October, 1853. The wound made on the first occasion was found firmly cicatrised. On the 12th of October I again applied the trephine, but a little higher than before. The crown of the instrument sank readily into a circular cavity in the bone, and two or three drachms of clear serous fluid escaped. This fluid so resembled synovia in appearance, that at first I thought the elbow-joint had been perforated. On introducing the finger, however, into the opening, it passed into a round cavity, the walls of which felt smooth, and as if covered by a serous membrane. The patient made a slow though perfect recovery; and he occasionally presents himself at the hospital, with a perfect arm, having suffered no return of his complaint. From the smoothness of the cavity and the nature of the contents, I have no doubt that this was a case of cystic disease, which, if allowed to continue, would probably have expanded out the osseous tissue into what the old surgeons call a "spina ventosa."

4. The last pathological condition is a kind of *central molecular necrosis*, taking place in the can-

cellous structure of the articular end of a long bone. Such was the case recently operated on.

William P— was admitted under my care here on the 17th of June, 1856. Is a man of dark complexion and good general health. Five years ago an acute attack of synovitis of the knee-joint came on, after taking a walk during convalescence from an attack of enteritis. He was treated at another hospital and at Margate for two years, but without success. He then applied to us, and received some relief from the application of issues on each side of the knee. He was subsequently treated at various places—on Scott's plan, with the actual cautery, with blisters, and in other ways. The joint subsequently became ankylosed in the straight position.

For the last three years he has suffered severe intermitting pain at the inner side of the head of the tibia, with nocturnal exacerbations; it is readily aggravated by exertion. The pain is of a throbbing, gnawing character. There has been no enlargement of the bone at any time.

On admission, the knee was partially ankylosed, but not enlarged, and the pain previously mentioned existed continuously on the inner aspect of the head of the tibia. Here there was a tender spot almost as large as a sixpence, but no enlargement whatever of the bone was perceptible.

On Wednesday, June 18th, I cut down on the seat of pain and tenderness, and, on applying the trephine, the crown of the instrument readily sank into the cancellous structure, as if the compact tissue had been eroded away except a thin external layer. I saw no escape of purulent fluid, but two of the bystanders affirmed that they saw some fluid escape. In the soft cavity into which the head of the trephine sank, there was a quantity of dark, softened, spongy bone. This was carefully gouged out, a considerable portion being taken away from the interior of the head of the tibia. The wound was stuffed with lint, and cold irrigation was applied to moderate inflammatory action, in consequence of the seat of operation being in immediate proximity with the knee-joint. Since the operation the patient has lost all pain, and is doing well, the wound granulating healthily.

This case differs from the others, inasmuch as there was no enlargement of the bone, though there was internal molecular necrosis. There was not only no expansion of the head of the tibia, as is usual in these cases, but, if anything, a somewhat shrunken and wasted state of the knee and limb.

The operation of trephining a bone in such cases as these is very simple. The trephines to be used should have narrow, deep, but smooth crowns, and the surgeon should always be provided with two instruments of the same size, that will cut in the same circle. This is requisite in consequence of the great thickness and occasional hardness of the bone in some of these cases, after it has been chronically inflamed, by which one trephine may be rendered useless. In consequence of not using this precaution, of having two trephines, I have seen a surgeon of eminence obliged to stop in the

midst of his operation till another instrument could be procured.

So much, gentlemen, for cases of intermittent aching pain in bone, attended by local persistent tenderness, with enlargement of the bone,—for the different pathological conditions on which it depends,—and for the one mode of relief, whatever be the exact cause of the symptoms—viz. the perforation of the bone by the trephine.

Original Papers.

Contributions

TO

SURGICAL ANATOMY

AND

OPERATIVE SURGERY.

By R. KNOX, M.D., F.R.S.E.,

LECTURER ON ANATOMY AND CORRESPONDING MEMBER OF THE
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GENERAL CONSIDERATIONS.

BEFORE the young surgeon ventures to operate on the living body, it is presumed that he has acquired, in the practical rooms of an anatomical school, such a knowledge of the use of instruments, and of the mode of performing the various operations, as to render many general remarks on such matters unnecessary. The surgeon ought, in fact, to be familiar with the use of surgical instruments—the forceps, aneurism needle, the common needle, scissors, saws, and knives of all shapes. So late as 1821, French surgeons had no scalpels, and we in Britain no bistouries. Take care that you are provided with both, in order to meet every emergency. For want of a common short-bladed scalpel, I saw a French surgeon of the highest eminence (M. Roux) baffled in performing so simple an operation as paring the edges of a perineal fistula; he had no other instrument but the long sharp-pointed French bistoury, with which he tried first in one posture and then in another to pare the edges of the fistula; it was a ludicrous failure.

Prior to any operation, however trifling it may seem, consider carefully its probable results. Observe the constitution of your patient; for there are some persons who cannot support operations, though aided by etherization. It is especially in public hospitals, infected generally with an unwholesome atmosphere, that all operations, not urgently called for, should be scrupulously avoided.

Whilst observing the practice of Messrs. Boyer and Roux, in the Hospital La Charité, Paris, the following case came under my notice:—

CASE 1.—A young married woman, extremely beautiful, entered the hospital in order to have a small tumour removed. The tumour was situated at the root of the nose, and close to the eyebrow.

She fancied that it marred her beauty, and might grow larger. In an evil hour for her, M. Boyer operated. The operation was clumsily performed, for the celebrated surgeon was now an aged man. The sac was punctured instead of being removed entire. It was, therefore, laid open, its atheromatous contents evacuated, and the cavity stuffed with *charpie*. Severe typhoid symptoms appeared next day, and in three days more this beautiful woman was a corpse. It was said that she caught the typhus in the hospital, and that the operation had nothing to do with her death.

I have my doubts; but the plain facts are just as I have narrated them. In England, at that time, the typhoid symptoms would have been ascribed to her own constitution, and not to the presence of typhus in the ward. Be distrustful of medical and surgical theories, however distinguished their inventors may be. One of the first patients I saw in St. Bartholomew's Hospital, where I studied surgery, was a stout man, with a compound fracture of the leg. He had all the symptoms of a most intense typhus. Mr. Abernethy remarked, that were a physician to see the patient without being told of the fracture, he would say at once that the case was one of typhus. I confess that even then such was my opinion. Typhoid patients were in the hospital—I rather think, in the ward. But be this as it may, you cannot be too distrustful of medical and surgical theories.

Even in private practice, aided by all the advantages which comfort, wealth, and healthy apartments can give, surgical operations should not be rashly proposed merely to improve the appearance of the individual.

CASE 2.—When Mr. Liston was rising into reputation as an operative surgeon, it was but too natural for him to urge operations on some who ought never to have been subjected to them. Amongst the victims of such unfortunate advice was a gentleman of rank and fortune. He had been annoyed for some time by the growth of a small bony tumour connected with the head of the fibula, and so situated as to be conspicuous above the edge of the hunting boots he occasionally wore. This gentleman, in the prime of life and health, was unfortunately recommended to have the tumour removed by a surgical operation, which was described to him as simple, safe, and of easy execution. Accordingly, the head of the fibula, and a part of the shaft involved by the tumour, were boldly removed by Mr. Liston. Severe and oft-repeated bleeding took place; and the surgeon failed in his attempt to secure the vessels. It was next proposed to remove the limb; but to this the unhappy gentleman objected. Death terminated his sufferings in a few days. Such cases are still far too numerous.

It occasionally happens that for some months continuously the air of an hospital exercises so pernicious an influence over the health of its inmates that no case operated on recovers. The hospital becomes, then, a slaughter-house, which ought, temporarily at least, to be closed. The

mortality in general hospitals after battles is so terrible to behold, that I feel convinced that it would be preferable to tend the wounded in the open field. Under all circumstances, hospitals, whether civil or military, are great evils submitted to by mankind to avoid still greater.

As regards hospitals and hospital practice, the young surgeon will do well not to be especially biassed in favour of what he has seen practised there, nor to place unweening confidence in any name, however eminent. Self-sufficiency, easy to acquire, but with difficulty laid aside, is a serious drawback to character, whether individual or national. I remember the amazement I felt on first visiting a military German hospital, contrasting it with the clean, orderly, model-like wards of an English military hospital, similarly situated. Here all was still, mute, quiet; everything in its place. There all was confusion, noise, disorder; the men were smoking, drinking, talking, laughing, and amusing themselves; their clothes lay about in piles; it was liberty hall. Educated amongst a people fond of "models," I looked with pity on "these foreigners," and agreed with the staff-surgeon, also a model Peninsular man, who accompanied me in the visit, that these wards resembled pigsties. But a larger experience has shown me the evil results of our "admirable model systems" and of our self-sufficient dogmatism. From these pigsties, as we were pleased to term them, the wounded escaped alive in a much greater proportion than from our "model wards." I am no advocate for filth or neglect; but freedom from restraint is a great good, whether within the walls of an hospital or without. We fancied also that our practice was, of course, the best; but the Russian surgeons appealed to statistics, and showed that of the wounded we lost two for their one. I shall return to this when speaking of the results of amputations, &c.

Never depute your duties to another, and weigh carefully the probable results before taking up the knife or scissors.

CASE 3.—A young surgeon, placed on board ship in charge of troops proceeding to a distant colony, was called on to attend the cabin-boy of the vessel, to whom an accident had happened. It was this. In descending the ship's side into a boat, he fell on a boat-hook, which lacerated the ham, tearing up the skin extensively. Instead of replacing carefully the large flap thus caused, he cut it off with a pair of scissors. Fever supervened next day, and the poor boy was reported to the surgeon to be very ill. He (the surgeon) did not trouble himself to visit the boy, but desired his orderly sergeant to give him a dose of calomel. The sergeant mistook the phial, and gave him for calomel a dose of corrosive sublimate. The patient died shortly afterwards in frightful agony.

Were such occurrences frequent, it would be a fair object of inquiry with any community, whether the practice of an art so conducted ought not to be suppressed.

Occupying the first place in the thoughts of the surgeon should be the question of diagnosis. To

be skilful in this marks the true surgeon. Whilst a student I had the benefit of observing for some time the clinique of two physicians, one of whom was never right in his diagnosis; the other never wrong. I soon attached myself to the latter; my fellow-students followed the former in troops. They gave as a reason that he was an active practitioner, and used to prescribe twelve or fourteen different medicines to be taken in the twenty-four hours. The physician I preferred, having no faith in drugs, scarcely prescribed anything. I recommend the young surgeon rather to imitate the latter than the former; he cannot be too careful that his diagnosis be correct. A blundering surgeon benefits, it is true, a public hospital by adding to the accidents occurring out of doors and brought into the hospital a fair amount of in-door accidents occurring in the wards, but it is apt to give the person and the hospital a reputation not to be envied.

The revival of the use of anæsthetics or soporifics is an event of yesterday, as it were. They are now very generally employed, and surgeons prefer, I think, chloroform to every other. By its use the sense of pain is deadened or destroyed. Where hæmorrhage is not dreaded, a draught of good wine is the best anæsthetic; but this may safely be left to the choice of the patient. Should he prefer chloroform, the simpler the mode of application the better. A small quantity of the liquid applied to the nostrils by means of a handkerchief is the safest method of using chloroform. It not unfrequently happens that death follows its use, and therefore the surgeon will do well never to press it on his patient.

An operation cannot be performed too rapidly, if safely. Mr. John Bell, the greatest surgeon of modern times, never threw away an instant during his operations.

CASE 4.—A gentleman consulted Mr. Bell for a fistula of the rectum, opening externally. The surgeon examined the fistula, not with a probe, but with a probe-pointed bistoury, and having ascertained that it was a simple uncomplicated fistula, he completed the examination by dividing the sphincter as he withdrew the instrument. On recovering from the momentary pang caused by the incision, the gentleman inquired of Mr. Bell when it would be convenient for him to perform the operation? The answer was, "It is already done."

Systematic writers on Surgical Anatomy and Operative Surgery usually devote a considerable section of their works to what they term "simple operations," practised indifferently on all, or nearly all, parts of the body; such as division, cauterization, compression, dilatation, extraction, reduction, reunion, &c. But it seems to me superfluous to speak of such operations at any length. The student can only acquire a knowledge of them by seeing them put in practice by others, and by practising them himself. The reunion of divided parts by needles, stitches, adhesive and other plasters; the reduction of dislocations; the extraction of foreign bodies; dilatation by means of the fin-

gers or by instruments; the application of the heated iron; compression by bandages; and division with the knife or scissors, constitute nearly the whole of the surgeon's manipulative education. Should he neglect practising it on the dead, he will have to learn on the living; sometimes at his own cost, sometimes at that of his patients.

In the selection of instruments the young surgeon should follow the example of the best operators of his day, selecting the form they prefer. Let him remember always that an operation is not a dissection, but a series of incisions and steps taken agreeable to a plan previously laid down towards accomplishing a clearly understood object. Where the fingers can be used, they are preferable to knives or forceps. Never press on inflamed or suppurating parts, lest the pressure cause sloughing. To employ caustics advantageously merely requires judgment and a little dexterity. Rust, of Vienna, made the actual cautery fashionable for a time, and with Baron Larrey the moxa was a universal remedy. A sounder pathology has greatly diminished the frequency of appeal to these violent remedies. Nevertheless they are of easy application, and prove sometimes successful.

Hæmorrhage is the accident which the surgeon most dreads, whether occurring in consequence of accidental wounds, or caused by operations. In whatever way it happens, the surgeon must look carefully to it, and ascertain its source. Be in no hurry; but lose no time. If the bleeding come from a vessel of any appreciable size, seize it carefully and steadily with the forceps used in dissection, and request an assistant to place a ligature around the vessel, *clear of the points of the forceps*. If the bleeding come from a vessel or vessels which cannot be discovered, the surface may be exposed for some time to the air, or moistened with cold water and vinegar, or a thin linen rag dipped in these, and kept moist, may be laid over the part. Occasionally simple pressure applied for a time by the fingers of an assistant will arrest a hæmorrhage; the elevation of the limb, should the bleeding occur there, is at times very successful. Other means for arresting hæmorrhage occurring from the division of small vessels have been recommended, such as torsion or twisting, which may be done with the common forceps, touching the part with lunar caustic, applying turpentine, tincture of the muriate of iron, &c. I have followed Mr. Abernethy's mode of treating certain hæmorrhages with marked success.

CASE 5.—Of the French wounded on the 18th of June, 1815, some were brought into Brussels, and placed in churches and barracks, used temporarily as hospitals. The hospital called Gendarmerie was at first filled wholly with the French wounded. The wards of the 1st division fell to my charge. In one of the adjoining wards a staff-surgeon, searching for secondary sequestra of the thigh bone, consequent on gun-shot fractures, divided with the knife some large branches of the external circumflex artery of the thigh.* He left

the patient in charge of an assistant, directing him merely to apply pressure to the part. In a short time a message came from the assistant to say that the hæmorrhage could not be controlled. The staff-surgeon requested me to see what was the matter. It was this: the assistant, alarmed, had piled lint and cloths alternately over the wound, and over these a tourniquet, and the larger the pile of rags grew the hæmorrhage increased the more. Knowing, from what Mr. Abernethy had told me, that such ineffectual efforts to restrain hæmorrhage merely add to its strength, I removed all the dressings, bandages, &c., exposed the surface freely to the air, and thereafter placed over it, loosely, a thin linen rag moistened with vinegar, directing the heel to be raised, and the patient to be let alone. The hæmorrhage soon ceased, and did not return.

CASE 6.—In the terrible hand-to-hand conflicts which took place on the memorable 18th of June between the French and the English cavalry, a young soldier of the English received a wound in the parotid region, immediately below the ear. I did not see this brave soldier until about three weeks after the accident, when it fell to my lot to bring to England the first ship-load of those who, though wounded but not yet recovered, had escaped the terrible field. These wounded men, about ninety in number, embarked at Ostend, and were placed ultimately by me in Haslar Hospital. The first object which caught my attention, on gaining the upper deck of the vessel, was this young man. He lay extended on the deck, pale, exhausted, almost exsanguineous, and seemingly dying. He spoke with difficulty. The wound below the ear had never closed, and it bled daily, so that he could no longer sit upright. As usual, a pile of rags, lint, portions of bandages, &c., steeped in blood, and now hardened, concealed the wound, and kept the danger out of sight. The sergeant, my only assistant, cautioned me not to remove this pile, as he had seen the dangerous results repeatedly in this case, whilst on their route from Brussels to Ostend. Regardless of this, I put Mr. Abernethy's plan in force: removed all pressure, exposed the wound to the air, applied a rag loosely to the wound, directing it to be constantly wetted with vinegar, and directed his head to be raised on pillows. The hæmorrhage never returned, and he rapidly recovered.

In some persons there exists an hæmorrhagic constitution, amounting to a serious disease.

CASE 7.—A retired officer of the Cape Regiment of Infantry had been for some years subject to this hæmorrhagic tendency. The slightest wound of the skin occasioned a considerable loss of blood, which flowed all the more that he continued to wash the wounded part with cold water. I found that pressure with the fingers, employed for but a short time, closed the wound uniformly, and arrested the hæmorrhage. This gentleman, I found, was also subject to tape-worm, from which he was relieved by a few doses of turpentine. The combination of these diseases was no doubt merely accidental.

* The descending branches of this artery are occasionally large.

In unhealthy sores, whether originating in wounds or otherwise, great caution is required in the avoiding incisions into such diseased structures.

CASE 8.—A soldier in the Royal African Regiment of Infantry had for some time suffered from a corroding, ill-conditioned ulceration of the fingers and back of one of his hands. The surgeon under whose care he was wrote to me to come to headquarters, (Graham's Town, South Africa,) to assist him in amputating this hand and another, of which I shall speak afterwards, when considering the effects of gun-shot wounds in the hand. On examining the disease, I found that the bones of one finger were carious, and at least contributed to maintain the disease. I recommended, therefore, that instead of amputating in the forearm, the three phalanges of this finger should be removed; but the surgeon, aware of the alarming hæmorrhages which had followed all incisions, however slight, made into the semi-putrescent fingers and hand, declined attempting it. Persisting in my opinion, the case was handed over to me, to act as I thought fit. A straight probe-pointed bistoury was passed close to the bone, as high as the lateral ligaments connecting the first phalanx to the metacarpal bone, and these ligaments were cautiously divided successively, and the three phalanges withdrawn from the ulcerating mass. No bleeding followed, and the hand recovered under the use of lotions of nitrate of silver.

A lamentable case (9) is recorded in the "Transactions" of the Medico-Chirurgical Society of London, of a young man afflicted with a constitutional hæmorrhagic disposition. He had been obliged to have a tooth extracted. Hæmorrhage followed, which nothing could arrest, although it is clear to me that this might have been accomplished by the pressure of a child's finger. In an evil hour, an operating surgeon was sent for, instead of a physician. He tied the carotid artery. I need not say what became of the patient. Such cases injure, the character of surgery as an art.

In general, the common dissecting-forceps is the best instrument for seizing hold of the divided artery, and securing it until a ligature can be applied, but the surgeon should also be provided with a tenaculum. When the tongue is wounded, for example, by a tooth accidentally driven into it, the closeness of the tissue renders the forceps useless. You must transfix the bleeding orifice of the vessel with the tenaculum, and tie in a small portion of the surrounding texture. The arteries in the palm of the hand are difficult to be secured, and may require the use of a tenaculum. They must be tied where divided, and, if possible, a ligature put upon both orifices, lest the freedom of anastomosis render your single ligature of no avail.

Lastly, when a large trunk, such as the brachial, femoral, &c., has been accidentally punctured or wounded, the vessel must be secured *where wounded*, by placing a ligature above, and another below, the wounded part. In my younger days, surgeons mistook wounded arteries for aneurisms, and to the tumour caused by the effused blood they gave

the name of traumatic aneurism. One error naturally produces another: they misapplied Mr. Hunter's ingenious treatment of aneurism by employing it in cases of wounded arteries. I denounced this extraordinary practice in my earliest lectures on Anatomy, but it continued to be in vogue for a long time. When the brachial artery was wounded at the bend of the elbow, the hospital surgeons of the day persisted in making another wound higher up, and tying the artery where it was not wounded, but sound. This practice, beneficial only to the student, as it afforded him generally an opportunity of witnessing several operations instead of one, has at last, I believe, been reluctantly abandoned. I am at a loss to comprehend how it ever got a footing amongst surgeons.

From the period when Bichat laid the foundation of true descriptive anatomy, the anatomical relations of surgical disease came to be studied more carefully, with a view especially to operation, and attempts were made to describe the whole anatomy of man solely from this point of view. These attempts, however, though made with infinite care and labour, have to a certain extent proved failures; they were in a wrong direction. The "regions" into which the body was divided being in a great measure artificial, necessitated a technical and artificial memory; the anatomical details respecting the regions being no longer associated with natural structures, ceased to lay hold of the memory, and *triangular spaces, pyramids, and inverted cones*, took the place of natural forms, clearly defined by muscles, ligaments, and bones. Above all, it was wholly forgotten that surgical operations being performed on living bodies, the anatomy of the dead alone could never suffice. In a word, I do not hesitate asserting that the systematic form which surgical anatomy assumed in France, and, as usual, speedily copied in England, has prevented the acquisition of true surgical anatomy and of surgery itself.

The student, whose knowledge of the anatomy of man is based on large views, on an exact knowledge of the osseous muscular and ligamentous systems, on a comparison of the dead with the living, on an accurate knowledge of the position and course of the great vessels and nerves, can experience no difficulty in arranging the surface of the body into surgical regions. In the neck, for example, the sterno-mastoid muscle, when not displaced by disease, is an unerring guide; so also the hyoid bones, the salient angle of the thyroid cartilage, the cricoid and crico-thyroid ligament, are structures which can easily be determined and touched prior to all operation. The situation of these being known, informs us correctly as to all the adjoining structures. So it is with other regions of the body, as I shall easily prove when describing the operations performed on them.

If to this kind of anatomical knowledge the surgeon adds a sound physiology and an acquaintance with the pathological conditions which more immediately influence the structures he may be

called on to interfere with, all merely mechanical divisions of the body as to regions may safely be dispensed with. The following section is intended simply as a sketch of the method by which the student may recall to his recollection certain important structures, their relations, and physical conditions, &c. The minute surgical anatomy of each part operated on will be given in the section devoted to surgical operations.

1. The external integuments of the body present several objects meriting the special attention of the surgeon. A knowledge of the varying thickness of its constituent parts, and of its mode of union with the subjacent structures, he ought to acquire in the practical rooms. By this he learns to avoid penetrating too deeply, or not enough, in his first incisions, when he is called on to operate on the living body. Note carefully the comparative strength of its constituent parts in those regions where the arteries approach the surface, in the scalp, the neck, the bend of the elbow, palm of the hand, and foot. An accurate balance of the hand and instrument, and a nice and instantaneous adjustment of the force used to the resistance to be overcome, can only be acquired by frequent practice in the dissecting-room. Accidents are continually occurring in the hands of those deficient in this valuable mechanical quality. In removing the lens, for example, they, by undue pressure, are apt to force out portions of the vitreous humour; in opening abscesses, they often transfix the deeper structures beneath the inner wall of the abscess; and in puncturing a vein at the bend of the elbow, they are almost sure to transfix the artery.

CASE 10.—A physician in a large general hospital, fancying that it might benefit an anasarctous patient to have *scarifications* made around the knee-joint, so as to admit of the escape of the serosity collected in the subcutaneous cellular tissue, left directions for the house-surgeon to make these *scarifications*. He, inexperienced, and not aware of the position of the terminating branches of the articular arteries, boldly made a number of *incisions* around the joint. The patient died the next day from the hæmorrhage which followed. Now, what led to this unhappy result? No one had ever explained to the young man, now a most eminent surgeon, the difference between an *incision* and a *scarification*. The case, fortunately for both physician and assistant, occurred in a country where no coroners' inquests are held.

Erysipelas of a dangerous character is a common disease of the integuments, demanding, not unfrequently, the interference of the surgeon. Placed, as it were, between the confines of the arts of physic and surgery, the patient's position comes within the adage which devotes such persons to a certain fall. Though often confined to the dermis itself, it yet frequently proceeds much deeper, involving not merely the superficial fascia, but the cellular and aponeurotic sheaths of the muscles. Wherever situated, the surgeon must not hesitate in laying open the abscess.

CASE 11.—An elderly woman came into a general hospital for an extensive erysipelatous in-

flammation of the leg and thigh; this latter part was much swollen. The surgeon in attendance, the same person alluded to in the preceding case, unhappily fancied that this was a case to which minute punctures limited to the dermis itself were applicable. They were made in great numbers with the point of a lancet. In a day or two the case ended fatally, and the body of the poor woman was brought into my practical rooms. Observing the curious tattooing of the thigh, I called the attention of the class to the case. The punctures had in no one instance reached the seat of the abscess. On cutting into the limb, an enormous collection of purulent matter was found both above and below the fascia lata; it had even dissected many of the muscles. Now what led to this unhappy result in the hands of the same person who, as a student, opened the articular arteries in the case last described? In the former he employed *incisions* instead of *scarifications*, and in the latter case he used *scarifications* instead of *incisions*. Surgeons should have a clear idea of what they aim at before taking up the knife.

2nd. Beneath the dermis, and forming a constituent part of the general envelope of the body, is the superficial fascia, an adiposo-cellular layer of varying thickness, connecting the skin to the subjacent structures. The vitality of the skin depends on the integrity of this envelope to a certain extent, since all the vessels and nerves which proceed to the skin must of necessity pass through this cellular envelope. In it also lie the superficial veins, not perceptible in the young and handsome arm or hand, for example, but becoming conspicuous, as if enlarged, in age, when the integuments have become thinner, and the adipose substance ceases to be deposited in the superficial fascia. The subcutaneous bursæ are connected with this fascia; these shall be described in their place.

In some parts of the body, as in the palm of the hand and sole of the foot, the fascia I speak of is so thin as to seem wanting; it is present, however, but just perceptible. In the groins and on the lower surface of the abdomen it acquires a considerable thickness, and has been described in this region as if it were a structure peculiar to it. On the penis it forms the sheath of that organ; in the scrotum it assumes a slightly muscular appearance; in the neck, the cutaneous muscle seems partially imbedded in it. It is this great enveloping fascia which, by concealing the outlines of the bones, muscles, &c., embarrasses the surgeon who does not give to its presence a due consideration. The beauty of the human figure depends on the presence of this envelope, superadded to those proportions and outlines which the refined taste for form in all ages has declared to constitute the perfect and the beautiful in man.

3rd. The fascia just described rests in the limbs on the aponeuroses. These are fibrous, resisting, inelastic membranes, forming sheaths for the muscles, vessels, &c. Abscesses forming beneath them must be speedily relieved by the knife, otherwise terrible symptoms arise, great agony, and the sloughing of some important parts. Study their

anatomy, and cut boldly through them when inflamed. There is no danger in making incisions into them; the danger is in not doing so when required. They resist the progress of matter to the surface, and cause it to seek an opening higher or lower in the limb, dissecting the muscles and endangering the limb and life itself.

4th. As a general rule incisions into muscles ought to be made in the directions of their fibres, and the dividing tendons transversely avoided if it be possible. A partially divided nerve had better be cut through. Ligatures ought not to be placed on veins.

5th. Systematic writers on Surgical Anatomy have divided the head, properly so called, into head and face. The former they subdivided into the following regions: frontal, occipital, parietal, temporal, and mastoid. The face they subdivide into, nasal, labial, orbital, zygomato-maxillary, parotidal, auricular, and the regions of the chin and cheeks.

(a.) In the so-called frontal region, incisions into the integuments must be carefully managed, so as to avoid deformity. The integuments of the region adhere by a close cellular tissue (superficial fascia) to the subjacent muscles. Hence they follow the movements of these organs. The course of the muscular fibres in this region must also be carefully studied in most of the operations which take place here. The muscular layer and epicranial aponeurosis, enveloped in its own cellular sheath, is connected by a loose cellular tissue to the pericranium. In the subcutaneous cellular layer, or superficial fascia, the arteries, veins, and nerves of the region are mostly situated. Inferiorly the osseous base of the region, especially towards the root of the nose, is of great strength. It is here that the superciliary arches and frontal sinuses are found. In conclusion, we have in this region—1, the integuments; 2, the superficial fascia, slightly adipose; 3, the frontal muscle and a portion of the pericranial aponeurosis and orbicularis palpebrarum; 4, the sub-muscular cellular layer; 5, the pericranium; 6, the frontal bone; lastly, lymphatics and branches of the fifth and seventh pairs of cerebral nerves, the frontal branches of the superficial temporal arteries; on either side branches of the deep temporal and ophthalmic. The vein or veins called median-frontal and temporo-frontal occur also in this region.

(b.) In the so-called occipital region, or rather regions, we have on either side—1st. The integuments forming a portion of the hairy scalp. 2nd. The subcutaneous cellular fascia, dense, close, and lightly adipose, adhering firmly to the subjacent muscles. 3rd. The muscles themselves—namely, above the superior curved arch of the occipital bone, the occipital muscles and their aponeurosis; below the curved arch, the superior portions of the deep muscles of the neck covered by an integument and superficial fascia of considerable thickness. 4th. Mesially and below, the external occipital protuberance and upper part of the ligamentum nuchæ. 5th. The blood-vessels—that is to say, the occipital arteries chiefly, the course of

which is from below upwards. These arteries lie deep at first, but soon become superficial, and imbedded in the subcutaneous cellular fascia; the occipital veins accompany them. The lymphatics follow the course of the veins and arteries. 6th. Nerves abound, furnished by the auricular branch of the facial, the sub-mastoid branch of the cervical plexus, the posterior branch of the sub-occipital, and some filaments of the sub-occipital or first cervical pair; deep sympathies seem to exist between the muscles and nerves of this region and the male organs of generation, shown by the loss of virility consequent on deep wounds of this region. 7th. The basis of the region is the occipital bone.

The great strength of the cellular envelope of the muscles in the deep portion of the region, and in the adjoining region of the back of the neck, influences strongly the course of abscesses towards the surface, giving to them at the same time a dangerous character.

CASE 12.—Whilst studying pathological anatomy in Paris in 1822, I followed the practice of my esteemed friends, Drs. Chomel and Lherminier, physicians to the hospital La Charité, in order to derive benefit from the anatomical part of the inquiry. A young man was brought into the ward of M. Chomel, comatose and insensible. No particular information could be obtained as to the history of the case further than that he was the driver of a cabriolet, and that some days before he had been thrown from the carriage, alighting on his head. (No surgeon had seen him.) The only opinion arrived at from these imperfect data was that he laboured under typhus fever, and he died in a few days, a little purulent matter having previously begun to flow from one ear. On dissection, it was remarked *for the first time* that the back of the neck was swollen and discoloured, and had evidently been inflamed. On being cut into, an extensive abscess was laid open, situated beneath the deep muscles, and extending to the back of the external ear, into the external meatus of which it had passed by the fissures in the cartilage described by Santorini. A correct diagnosis during life would, no doubt, have saved this person from a premature and early death. In doubtful cases it will be found a safe practice by every physician to consult a good anatomical surgeon, unless their own education included practical surgery and anatomy.

(c.) *Temporal Regions.*—The name sufficiently indicates their position and extent. In these regions the integuments are thin, forming only a portion of the hairy scalp. 2. They adhere loosely to the subjacent aponeurosis and muscles by means of the subcutaneous cellular fascia. 3. The muscles and aponeurosis of each region form two planes: first, the more superficial aponeurosis, called pericranial, to which the auricular muscles are attached; secondly, the deep or temporal aponeurosis, separated by a layer of adipose cellular tissue from the preceding. This deep aponeurosis, attached inferiorly to the zygomatic arch, is formed of two layers with adipose tissue intervening.

The temporal muscle lies between this aponeurosis and the temporal and sphenoid bones. 4. The blood-vessels are the superficial and deep temporal arteries, veins, and lymphatics. 5. The nerves are very numerous; they also lie, like the arteries, in two planes, superficial and deep. The superficial come from the ascending branches of the cervical plexus, from the facial and from the auricular branch of the inferior maxillary; the deep come from the inferior maxillary and orbital branch of the superior maxillary nerve.

Fractures of the bones forming the basis of these regions are of a serious character. The bones are thin, and on being fractured, the branches of the middle meningeal artery are apt to be torn; these pour out blood, which being interposed between the dura mater and the cranium, separates these envelopes from each other, causing at the same time cerebral compression and death. I have seen several such cases.

Parietal Region.—Simple in its anatomy, but exposed to frequent injuries. 1. The integuments covering the region belong wholly to the hairy scalp. 2. The superficial fascia connects the scalp firmly to—3. The epicranial aponeurosis and muscles. 4. A loose cellular tissue connects these to the pericranium. 5. The bloodvessels met with in the region are branches of the temporal, auricular, and occipital, and are chiefly imbedded in the superficial fascia. The base of the region is the parietal bones. If the corresponding portion of the dura mater investing the cerebral aspect of these bones be included in the description of the region, it may then be said that the bloodvessels are arranged in three planes: first, the superficial imbedded in the superficial fascia; second, some branches of the deep temporal, lying nearer to the bones; third, the branches of the middle meningeal. These are intracranial.

Mastoid Region.—The mastoid process and mastoidian portion of the temporal bone form on either side the base of this region. Over these we have—1. The integuments. 2. The superficial fascia. 3. A portion of the epicranial aponeurosis. 4. The posterior auricular artery, vein, and nerves.

The hairy scalp and the integuments of the head generally differ in many particulars from those of all other parts of the body. This remark applies also in some respects to the face. First, they are abundantly supplied with comparatively large arteries, which adhere in a great part of their course closely to the dermis. When fluids become effused in the deep cellular fascia, or the scalp is raised up accidentally or by incisions, these arteries follow the integuments and superficial fascia, and thus maintain the vitality of the scalp for a much longer period than would happen were the skin of any other part of the body so extensively decolled. On the other hand, the laxity of the cellular layer connecting the epicranial aponeurosis and muscles to the pericranium admits freely of the extensive decolled of the parts above it, spreading towards the face, and affecting the orbicular and temporal regions.

The circumstances just alluded to influence like-

wise the form of tumours and the character of cicatrices. The course of the arteries, being from below upwards, and their proximity to the bones, forbid *in toto* the use of tight circular bandages in wounds of the head. They also teach, or ought to teach, the young surgeon important lessons as to the treatment of wounds of the scalp—how he ought never to despair of reunion even after the most extensive injuries. By the bold use of sutures and *serre-fines* the most serious-looking wounds may be made speedily to assume another appearance, and terminate in cicatrices by no means so broad as might at first have been anticipated.

CLINICAL OBSERVATIONS ON SOME FORMS OF URINARY DISEASE.

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No. V.

THE TREATMENT OF URINARY FISTULÆ.

(Continued from July No. page 80.)

THE third class of urinary fistulæ comprehends those cases in which unnatural openings into the urethra exist, not necessarily depending, like those belonging to the preceding classes, upon obstruction of the canal, but upon actual destruction of substance from the walls of the urethra and superjacent parts. The common causes of these are, sloughing from extravasation of urine, simple and phagedænic ulceration, and mechanical injuries of various kinds.

These openings are for the most part larger, although not invariably so, than any of those already referred to. Generally a portion of the floor of the urethra is destroyed, as well as the structures which have intervened between it and the external surface, so that in many cases more or less of the mucous membrane of the upper aspect of the canal is visible from the outer orifice. As a consequence, the whole, or nearly the whole of the urine passes by the artificial channel in a full stream. Such abnormal apertures may be regarded, for practical purposes, as naturally arranging themselves into two distinct divisions, viz.—

(a) Those which exist before the scrotum, or in the penile portion of the urethra, sometimes called ante-scrotal or urethro-penal fistulæ; and

(b) Those which are found in or behind the scrotum, known simply as scrotal and perineal fistulæ.

A broad distinction exists between the lesion of each division, in relation to their amenability to treatment, and to the nature of the operative measures which must be undertaken with a view to their cure. Ante-scrotal urethral openings are by far the most difficult to close. The coverings of the urethra here are thin, possessing substances insufficient to furnish an amount of granulations adequate to close any but the most insignificant aperture. For the same reason, it is difficult to obtain from their immediate neighbourhood a flap

endowed with sufficient vitality to preserve its existence after the process of transplantation. And further, owing to the extreme mobility of the member, it is difficult to maintain that perfect steadiness of position so desirable in a part which is the subject of an autoplasmic operation; while the alteration in size and form which this organ is especially liable to exhibit, through the occurrence of erections which are often quite uncontrollable, may impair, or sometimes render almost impossible, the success of the best-planned and most skilfully executed operation. Nevertheless, with all these difficulties, in addition to that formidable one, the contact of the urine before referred to, such openings, even when large, are not now by any means to be regarded as beyond the reach of surgical skill. The exercise of considerable tact, ingenuity, patience, and of unremitting attention during a long period of time, is indispensable on the part of the surgeon who undertakes to treat a case of penile fistula, requiring a plastic procedure for its cure; and some little resolution, with a good stock of patience, may be equally necessary on the part of the patient.

Openings in the perinæum, involving loss of substance, or the contrary, although by no means easy to close, are remediable with less difficulty than those in the anterior part of the canal, and that on account of the absence of conditions which have been just adverted to, as constituting the more prominent obstacles in respect of the latter class.

It is within the last few years only that these distressing lesions have been rendered amenable to surgical treatment. Formerly they were regarded as amongst the opprobria of our art, and were abandoned as beyond its power. Generally speaking, some operative measure, which has for its object the transplantation of a flap of the neighbouring integuments to supply the loss of tissue at the opening, is necessary. In a few instances, however, where the openings are small,—cases, by the way, which are exceedingly rare,—this proceeding has been dispensed with, and their complete closure has been accomplished by other means. The attention which has during the present century been devoted in Europe to plastic surgery, has greatly advanced our acquaintance with new means of remedying loss of the soft parts in various regions of the body, and amongst these in none more materially than in that under consideration.

First, then, ante-scrotal fistulous openings which are of small size, but obviously depending upon loss of substance in some degree, have been closed by repeated applications of a caustic agent to their edges and to the surrounding parts. Sir A. Cooper records a case in his "Surgical Essays," in which he closed a fistulous opening of the size of a pea, and situated immediately in front of the scrotum, after the failure of two operations by the hare-lip and interrupted sutures, by the application of nitric acid "to the edge of the fistulous orifice and upon the skin, to the extent of three-quarters of an inch around it." The process was repeated several times within the course of six or eight

months, when the orifice was perfectly closed. Sir A. Cooper observes on this fact—"But still it is only in cases in which the skin is very loose, or the scrotum is forming a part of the fistulous orifice, that this plan would succeed, as, where the skin is tight, it would be scarcely possible to draw it together so as to produce its union."*

In the same manner the nitrate of silver, or tincture of cantharides, rendered stronger than ordinary by evaporation, have been successfully employed in very small openings. Dieffenbach, who has devoted so much labour to the prosecution of reparative surgery, and has done so much to advance it in modern times, was in the habit of employing the latter agent in the following manner:—Having passed a full-sized bougie into the canal, he introduced a camel's-hair pencil dipped in the tincture referred to, and thoroughly applied it to the inner border of the opening. He repeated this three or four times in the course of twenty-four hours, and at the end of that time scraped out the cuticle raised by the blistering fluid. Action was excited on the raw surface by another application, and this process was repeated until the granulations were healthy, and bid fair to close the aperture. He tried on several occasions the introduction of a hare lip pin, and also a single point of interrupted suture, after thus making raw or "reviving" the lining of the fistulous opening, but without success. The use of the irritant agent uncomplicated with the suture gave generally a better result. Subsequently he contrived a suture, which produced more successful results than any such method previously employed, to which he gave the name of the "lace suture." (Schnürnaht.) His description of this was originally published in Dr. Oppenheim's Journal at Hamburg, in a long paper "On New Methods of Cure in Cases of Unnatural Openings in the Anterior Portion of the Male Urethra." This paper was translated by Mr. Swift for the *Dublin Journal*, and appears in No. XXIX., vol. x., 1830. Professor Dieffenbach has since illustrated the subject in his work on Operative Surgery, published in 1845, from which, as well as from his earlier writings, the account of this proceeding here given is taken.†

The operation of the lace suture is applicable to small fistulæ in the anterior part of the canal, and when the surrounding skin is supple and healthy. The margin of the unnatural opening, as well as the surrounding skin for a short distance, must be frequently touched, during the day previous to the operation, with the concentrated tincture of cantharides. Before proceeding to use the suture, the loose epidermis raised by the blistering fluid is to be removed by scraping, a sound introduced into the urethra, and made to pass below the opening. The operator is then directed to take "a small curved needle, sharp at the point, but not at its edges, with a stout silk waxed thread, and by means of a needle-holder to introduce it beneath the skin at about three lines from the border of

* *Surgical Essays*. By A. Cooper, F.R.S. London, 1812. Pp. 205-6.

† *Die Operative Chirurgie*, von Johann Friedrich Dieffenbach. Leipzig, 1845. Vol. I. p. 539.

the fistula." The point of the needle is to be carried deeply, but not into the urethra, and made to emerge at another point, about three lines from the margin of the fistulous opening. By three or four of these stitches, the thread is to be carried round the opening, until it finally emerges at the point which the needle was originally entered. The thread therefore now lies deeply in the cellular tissue around the fistula, at about three or four lines distance from it. (See figs. 1 and 2.)

FIG. 1.



FIG. 2.



FIG. 1.—Dieffenbach's "lace suture." The thread encircles the fistulous opening; its two ends are seen issuing from the point at which the needle was first introduced.

FIG. 2.—The suture tied, and the opening closed. The knot uniting the two ends of thread sinks deeply into the cellular tissue, and is therefore not seen.

The two ends are then to be drawn together gently and slowly, so as to tighten the thread, and gradually approximate the borders of the fistulous orifice until it is obliterated. Lastly, the ends are to be fastened by a knot, which, when fastened, sinks into the cellular tissue, and disappears. A piece of wet lint is to be applied to the upper part, the sound withdrawn, and the patient directed to pass urine, when requiring to do so, by the natural passage. In three or four days the ligature may be divided, and drawn away. "Even," says Dieffenbach, "if the first application does not quite close the opening, this is rendered smaller, and the succeeding operation is easy, and certain to succeed."

The next paper will commence the subject of Plastic Operations for the Restoration of Loss of Substance in the Male Urethra.

Wimpole-street, Cavendish-square, 1854.

ON INFANTILE JAUNDICE.

By GRAILY HEWITT, M.D. LOND.,

ASSISTANT-PHYSICIAN TO THE SAMARITAN FREE HOSPITAL FOR WOMEN AND CHILDREN, ONE OF THE REGISTRARS TO ST. MARY'S HOSPITAL, AND LECTURER ON COMPARATIVE ANATOMY IN ST. MARY'S HOSPITAL MEDICAL SCHOOL.

THE following case of jaundice occurred in an infant. I subjoin a few remarks on the pathology of this somewhat obscure affection.

In Nov. 1854, I attended a lady in her first confinement, the labour terminating in the birth of a male infant, and without the occurrence of any untoward event. The child was small and somewhat weak, but otherwise healthy. The mother's nipples were but slightly elevated, and owing, it is presumed, to the fact that greater efforts were necessary on the part of the child to procure the proper supply of milk, they soon became sore. About the eighth day after delivery the right breast became hard, swollen, and painful, the nipples excoriated,

and the child was unable to extract much nourishment from them. At this time also the skin of the child was observed to be yellow. On the tenth day the yellowness was more marked, and the sclerotics was also affected. The stools were white and scanty; the urine high-coloured, staining the linen. The child was drowsy, not at all inclined to attempt to take the usual nourishment, and the skin moreover was very cold. Up to the twelfth day the jaundice increased in intensity; it then began to disappear, the child all the while losing flesh. No sickness was observed; no fulness to any marked extent existed in the hypochondriac regions, or in any part of the abdomen. The stools regained their proper colour on the thirteenth day. It should be observed that the stools which were passed previously to the supervention of the jaundice were healthy.

The treatment adopted was the following:—A stimulating liniment (camphor and soap) was rubbed over the whole of the abdomen three times in the day by means of flannel. A small dose of calomel, (one grain,) followed in two hours by a teaspoonful of castor oil, was on three occasions administered. The child was well wrapt up in flannel, and sweetened milk-and-water given for food, the state of the mother's breasts being such as to render weaning necessary. When a month old, the child had completely recovered, and was stout and well.

Remarks.—Several interesting questions suggest themselves in connexion with this case, one or two of which can only be alluded to here. One naturally seeks to ascertain, in the first place, the cause of the jaundice. Jaundice occurring in infants newly born has received the name of *icterus neonatorum*. This term is only correctly used by those who restrict its application to those cases in which the secretions, such as the urine, as well as the skin, become yellow, or in which the sclerotics is also coloured in the same way; and it is obviously improper to include under this denomination cases in which, a day or two after birth, a slight yellowish tint is observed in the skin.

There can, I imagine, be very little doubt that there is nothing peculiar in the jaundice here alluded to, in itself, and there are no grounds for believing, that it differs essentially from jaundice occurring at a later period of life, although it is extremely probable that in the infant certain conditions sufficient for the production of this symptom may be present which are peculiar to this age alone.

In searching for an explanation of the causes of infantile jaundice, it is necessary to ascertain with what conditions, pathological and otherwise, it may be associated. In the newborn infant, the course of the circulation is suddenly changed; the body also becomes nourished in a totally different manner; the various organs assume new and remarkable relations. The liver is now easily affected by any derangement of the circulation in the right heart; for where there is an obstacle to the passage of the blood from the heart to the lungs, the hepatic system of veins become immediately gorged

with blood; "hepatic congestion" ensues. The lungs may not be, and often are not, sufficiently expanded to receive the quantity of blood the heart is endeavouring to propel through them, and the effect of this condition (atelectasis) is almost necessarily to produce a certain amount of hepatic congestion. If a high degree of hepatic congestion is a condition sufficient to produce jaundice, a vast amount of the difficulty which has hitherto attended the explanation of these cases of infantile jaundice will be removed. It is well known that debility, want of proper nourishment, and especially want of attention to the preservation of the warmth of the body, are circumstances under which the lungs of the infant do not wholly expand, and where the respiratory function is consequently very inefficiently performed. These conditions favour, as has been shown, the occurrence of hepatic congestion. It is stated by Dr. West, that in the Dublin Lying-in Hospital, where the ventilation is good, and the infants preserved from the injurious effects of cold, jaundice is rarely observed; whilst in the Foundling Hospital at Paris, where the children have been subjected to the influence of cold before being brought to the hospital, and where a number of them are congregated together, jaundice is exceedingly common.*

Jaundice is therefore proved to be a commonly-observed phenomenon precisely under those circumstances where congestion of the liver is also likely to be present. Jaundice produced in this way is likely to be observed soon after birth. We may conceive the possibility of congestion of the liver becoming an active agent in the production of jaundice in a strictly mechanical manner. It seems only necessary that the passage of the bile from that part of the liver where it is secreted to the duodenum should be interrupted or retarded, in order that jaundice may ensue. The presence of a larger quantity of blood within the vessels of the liver than usual must have the effect of distending one part at the expense of another. In this manner, the calibre of those bile-ducts which run within the substance of the liver will be diminished and the bile will pass off less readily from the liver. A slight but universal stasis of the bile thus brought about may be adequate to the production of jaundice, a portion of the bile becoming absorbed, and passing into the blood through the lymphatics of the liver. In very many cases where jaundice has presented itself in new-born children, the existence of obstruction to the flow of bile into the duodenum has been denied or thought impossible, because in these cases the stools have been slightly coloured with bile. If, however, the explanation given above be correct, there is nothing remarkable in this: there may be obstruction—obstruction sufficient to produce jaundice, but insufficient altogether to prevent the passage of a portion of the bile into the duodenum.

The form of congestion capable of causing jaundice in this way may even be of a transitory nature, passing away in a very short time, for it is well

known that jaundice, though often quickly produced, does not so readily disappear; the colouring matter of the bile is not rapidly removed from the circulation having once gained admission into it.

There are other conditions, involving to a greater extent, perhaps, pathological than physiological considerations, which are capable of giving rise to this jaundice of new-born children, all of which would seem to act in a mechanical manner. The bile may be secreted in greater quantity than usual, and this, combined or not with a slight obstruction nearer the duodenum, or at the duodenum itself, may be the cause of the jaundice. This is the more likely to occur, inasmuch as it is extremely probable that secretion is carried on with much greater rapidity and energy by the liver as soon as the first nutriment is taken by the child into the stomach, than could have been the case before; and, the flow of the bile may, consequently, not take place so freely as is the case afterwards. A new process has to be set up, and, as in the case in a new machine, the several parts may not work evenly and properly when the machine is first brought into operation. The quality of the bile first secreted by the liver may have some influence in setting up a certain degree of impediment to its easy passage into the duodenum, for if the secretion be too tenacious and viscid to move easily along the biliary ducts, this may lead to obstruction.

The various theories which have been propounded, in order to account for infantile jaundice, have for the most part had reference to the influence of the matters contained within the duodenum itself. Thus Baumes, one of the earliest writers on this affection, conceived it to depend on engorgement of the duodenum, caused by the presence of coagulated milk obstructing the entrance of the bile duct.*

Underwood believed that it arose from the presence of "a viscid matter obstructing the gall-ducts which open into the duodenum."

In some cases duodenitis, set up by the irritation of improper food, may be the exciting cause, the aperture by which the bile-duct opens into the intestine being thereby narrowed.

That condition known as induration of the cellular tissue is mentioned by authors as frequently co-existing with infantile jaundice.

These seem to be the principal conditions with which the jaundice of new-born children may be associated. The other causes which, in the infant, only occasionally tend to its production have not been alluded to, inasmuch as they may practically be excluded from any general view of the question.

In the particular case above detailed, the cause of the jaundice was by no means evident. As in most cases of the kind, the jaundice disappeared, and the child recovered; the symptoms, therefore, are all the diagnostic data afforded. The jaundice was well marked, and, for a time, no biliary colouring matter was observed in the stools. The inference is, therefore, that the obstruction was during that time complete, whatever may have been its

* See "On the Diseases of Infancy and Childhood," 2nd ed., p. 414.

* See "Traité de l'ictère, ou Jaunisse des Enfants de naissance," Par. 1804.

cause. The jaundice came on at a somewhat later period than in the cases recorded by Baumes and others, the stools having been natural during the first week after birth. Hence it is a natural inference that no obstruction existed at birth, or for some afterwards; and consequently it seems less probable that the altered physiological conditions attending birth produced the jaundice, than that this condition was brought about by some derangement of the digestive process afterwards. Whether, however, the milk obtained from the mother, by its vitiated quality, produced irritation in the duodenum, or whether the artificial nourishment administered at first, had a like effect, is of course a matter of uncertainty.

The treatment adopted, although sufficiently simple, was very efficacious in removing the evil. The beneficial effect of the abdominal frictions in restoring the heat of the body was particularly marked, and there is no doubt that, as exercising an important influence on the circulation of the liver and the evacuation of its secretions, they are to be especially recommended in the treatment of this affection.

Bedon-place, Hyde-park, June, 1866.

ON POINTS OF IMPORTANCE CONNECTED WITH THE TREATMENT OF ULCERATED LEGS.

By THOMAS WESTLAKE, Esq., M.R.C.S.

It will, perhaps, be universally admitted that there never was a period when mere theory and school-teaching so lamentably failed as in the early events connected with the late Crimean War. Our medical officers, although distinguished in the hospitals at home, soon discovered, when the stern realities and monstrous difficulties of epidemic disease and dangerous wounds were presented to them before and after battle, that instead of theory and book-knowledge, they could alone depend on practical observation and unwearied personal attention.

But it will be asked, What has the Crimean War to do with the treatment of ulcers? I reply, that little beyond the theory of the treatment of ulcers is taught in our schools and hospitals; and although the principles of treatment may now be considered as brought to perfection by Paget and Quekett, still the practice, the real treatment of ulcers, is deplorably at fault. But I would ask, Is it in the wards of an hospital that you can expect to find ulcers treated successfully? The time of the surgeon is known to be of great importance; the ulcer of the patient is therefore previously prepared for a ready and immediate inspection; and the alteration which succeeds, in the character and appearance, from exposure to the air consequent on this previous preparation, can only be appreciated by daily observation. Under this manifest disadvantage, the surgeon leaves his instructions to be carried out by the dresser, who too often hands over so unpleasant a case to the nurse; and I believe that in one only of our metropolitan hospitals is it the practice for the dresser to be compelled to

give his personal attention to cases left under his charge; and this salutary regulation emanated from, and was enforced by, not the surgeons, but the chaplain. An extract from the lecture of one of the highest living authorities (Sir B. Brodie) will prove the great importance of attention to this much neglected-branch of practice:—

"Ulcers of the leg are cases in which there is no question about the patient's life or death, and I think it very probable that many among you may pass by the bed-side of a patient without thinking it worthy of attention. But I am not disposed to regard it in this manner. Although the patient may not die of this malady, yet, without care, it may render him miserable for life. The disease may be very much relieved by art, and it is one of very common occurrence. You examine carefully a case of aneurism, a case of stone in the bladder, and so on; but these are things of comparatively rare occurrence, and which will not fall under your treatment in the beginning of your professional lives; but ulcers of the leg are cases of a very distressing nature, and such as meet you at every turn of your practice; and your reputation in early life may depend more upon your understanding a case of this kind than upon your knowledge of one of more rare occurrence."

Such ulcers, be it remembered, (especially amongst the poor,) not only disqualify the miserable patient for his usual duties, but not unfrequently render him an object of distress, and sometimes of disgust, to those around him.

It would be a useless occupation of time were I to classify the different kinds and appearances of ulcers, particularly as they are described in all our works on Surgery, my object being to incite the junior members of the profession to the practical, rather than the theoretical, treatment of ulcers. I shall as much as possible abstain from theoretical speculation, and confine myself to points of practical interest; and while I would not altogether disregard systematic arrangement, yet having found ulcers as varied in shape, colour, &c., as the sun's rays falling on different objects, I regard such description and arrangement as fallacious in reference to treatment.

Ulcers on the upper extremity, and other parts of the body, usually heal readily, while the cicatrization of those of the lower extremity is often attended with difficulty. This may be attributed to the weight of the superincumbent volume of blood weakening the vessels, and thus impeding the circulation. The getting rid of this trying difficulty I regard as the sheet-anchor in my mode of treatment—viz. *the complete and uniform support to the affected limb*. This is best maintained by a well-adjusted flannel bandage, from seven to eight yards long, and three inches wide. This plan enables the patient to pursue his ordinary avocation, at the same time that the wound is healed more rapidly and lastingly than by the most complete rest. In a work fraught with useful practical information, by Mr. Critchett, the preference in the treatment of ulcers is given to well-adjusted strips of plaster, Mr. Critchett considering that

more equal pressure is thereby afforded than by any other process. I cannot concur in this opinion, being convinced that plastering is not so good as the support of the bandage. This practical surgeon thinks a bandage does not afford the same amount of equable pressure as plaster; but it is easy to show that this is not a valid objection, where the bandager is practically skilful. The bandage has, too, the advantage of perfect freedom from the disagreeable smell of plaster, which at night, and to a sensitive and irritable stomach, is not only objectionable, but almost unbearable. Again, the skin, particularly in varicose ulcers, is attenuated and irritable, and the application of plaster, however free from irritative ingredients, often produces a crop of eczematous or impetiginous ulcers, thus giving additional annoyance to the patient, and extra trouble to the surgeon. It may, too, be mentioned, that the new skin, being delicate and thin, is often torn away by the removal of the plaster.

It is admitted by Mr. Critchett, that when the plaster is clumsily applied, or with too much tightness, serious consequences ensue. The same objections can scarcely apply to bandaging, which can easily be loosened or removed by the patient. The practice and perseverance which Mr. Critchett states to be necessary to ensure sufficient dexterity in the application of the plaster, I grant, is equally true of the bandage; and I quite agree with Mr. Chapman, in his remarks, "that a single day's neglect at a critical juncture, or one day's unskilful application of the bandage, may undo all that has been gained by a month's care and attention."

It is by this valuable agent, compression, that Nature is most assisted in the reparation, and in ensuring a speedy and permanent cure.

The advantage of this support enables the patient also to use the important auxiliary of exercise, which exerts so beneficial an influence on the proper circulation of the blood; thus affording great relief to pain, as well as improving the health and spirits, often much reduced, by having been subjected to the irksome panacea of a smothering in bed, and soaking the limb in poultices.

I am apprehensive that any description will fail to convey, even a faint idea, of the morbid appearance in the different classes and stages of ulcers. Experience alone can adequately convey it to the mind; nor will the success of treatment depend on a knowledge of the various characteristics, as described by authors; but upon the power of recognising each phase, and adapting the plan of treatment accordingly. "As right men in right places," so is it all-important to select the right time for the use of right remedies, which, however, valuable in themselves, may, for want of proper discrimination, be thrown aside, and treated with unmerited neglect.

Is there any period at which a bandage cannot be applied? I believe not. Its superiority over fomentations and poultices is most marked. I have scarcely ever seen any *beneficial* effect from either poultices or fomentations; but I have often witnessed, as the result of their use, large flaccid gra-

nulations, and the temporary loss of all tonicity about the ulcer. I, therefore, jealously avoid even sponging the ulcer with warm water, but cleanse it with a piece of dry lint prior to dressing, which should be effected as quickly as possible, not allowing the ulcer to be exposed to the injurious effect of the air.

As regards the various remedies recommended by authors, I believe that experience alone can guide the surgeon in an advantageous selection; and while I would not advocate the merits of any one system of treatment to the exclusion of the others, yet, as a general principle, I affirm that water-dressing, either cold, warm, or medicated, has never proved beneficial under my hands, while the objections to it are many. If the lint or linen be allowed to become dry, the highly sensitive and tender granulations are irritated by the rough surface, and by its removal the new skin becomes often stripped. If the wound be constantly saturated, it involves rest, neglect of business, and loss of the all-important remedy—support.

While the stimulating plan unquestionably possesses great powers, the experienced eye is necessary to regulate its employment. I have seen a healthy granulating surface, secreting laudable pus, completely destroyed by the injudicious application of even a *mild* caustic.

In indolent ulcers, particularly, it becomes necessary to vary the stimulants, or the ulcers become sluggish, and soon relapse into their former state. I have found the compound tincture of iodine the most safe and efficient stimulant; and in irritable ulcers, the application of the following lotion,—hydriodate of potassa, one scruple; hydrocyanic acid (Scheele), half a drachm; camphor mixture, one ounce,—applied for four or five minutes, with lint well saturated, acts as a charm. To be succeeded by the following ointment: spermaceti ointment, half an ounce; iodine, five grains; extract of belladonna, one drachm. I have seen little benefit result from the use of medicine, nor do I think it necessary for accelerating the healing process; the only requisites being a well-applied bandage, exercise, good air, generous living, and suitable appliances. I do not refer to ulcers of a specific character.

The frequency of dressing the wound must depend on the character of the discharge. Pus soon becomes decomposed, produces irritation, and retards recovery.

The reluctance and aversion of our leading surgeons to attend to this unpleasing branch of surgery has, I feel assured, induced many to recommend patients afflicted with ulcers of many years' standing, not to jeopardize their health, which may be consequent on the wound being healed. Such an opinion I believe to be a complete *ignis fatuus*. I have myself had patients whose ulcers were healed after twenty or twenty-five years' standing, and have never found their health damaged, but, on the contrary, improved, with the cheering additional advantage of restoration to society and the enjoyments and comforts of life.

I lay no claim to specific treatment, but from

long experience and extensive practice I can confidently assert that, whenever a patient gives himself anything like fair and proper assistance, ulcers of every kind, however chronic, save those of a malignant character, are not only perfectly tractable, but certainly admit of a speedy, safe, easy and lasting cure.

The treatment of ulcers was forced upon my attention soon after commencing practice, and I found myself like a captain in a crazy bark, in an unknown sea, without chart, compass, or rudder, when my first patient, a wandering horse-dealer, applied for assistance. He was a man of dissolute habits, and had for many years been subject to extensive ulceration of the legs. I felt that some evil genius had directed him to my surgery, as his great emaciation and horror-stricken countenance quite appalled me, particularly when I inspected his legs, which in size were equal to his body, with numerous wounds varying from the disc of a fourpenny to that of a five-shilling piece; in fact, the legs might have been termed a mass of putrid flesh, there being but little remaining skin; and the effluvia emitted was disgusting in the extreme. Finding that the man had been under many surgeons of eminence, and in hospitals, I at first refused to take charge of so frightful a case, but did so ultimately, hoping that, if successful, it might establish me in the neighbourhood. But at the very threshold I was met, and at once environed, with difficulties. I attempted, but in vain, to diagnose the wounds; my little hospital knowledge, and a reference to all works on the subject, soon proved, like the treatment therein recommended, unavailing and confusing. I laboured diligently, day by day, to notice any apparent change in each wound, making a note of the same. After two or three weeks I began to vary my treatment, touching a few ulcers with strong caustics, others with a milder form, poultices, water-dressing, ointments, plaster, &c.; for I had an extensive field to operate upon. I soon observed a marked difference in the appearance of the ulcers, even in those that were treated alike. I also found that a class of ulcers treated one day would improve in the appearance of the granulations and the discharge, but if the same treatment were persisted in for two or three days the ulcers became unhealthy and receded. By vigilantly marking and noting these changes, I had, in about three months, the ulcers completely under my command, and could with certainty predicate the appearance and advance of the healing process in each ulcer, so that within five months every ulcer had healed; and although the man returned to his intemperate and depraved habits, he had not the slightest return of the disease during the period of his after-life, which was seventeen years.

To avoid tediously extending cases over a lengthened period, I will briefly give a few cases out of many which I have had under my care since practising at Surbiton, and it is not a little remarkable that my *first* patient in this place also should have been one suffering under ulcerated legs.

In February, 1853, my advice was sought by a chemist in the town, for a remedy to alleviate the suffering of F. B——, aged fifty-three, a labourer, who stated, that about seventeen years previously he received a blow on the leg, which soon produced a wound, which did not heal for upwards of a year. About two years afterwards, the wound again broke out, with two or three others, and in a few months the other leg became similarly affected. He had been under various kinds of medical treatment, without relief. At the time of my seeing him, he was, and long had been, confined to his house, and supported by the parish. There were nine wounds on the right, and seven on the left leg, one of which was as large as an ordinary wineglass. This and some of the other ulcers were of a character I have before met with, giving an appearance as though emmets had been long and actively employed in burrowing under the skin, which was left thin and jagged, from an eighth to a quarter of an inch, and dropping flaccidly over the wound. A thin, sanious discharge was copiously poured out. From the lengthened and extreme suffering this poor fellow had undergone, I was prepared to meet with a ready and strict obedience to my orders, and at once promised his recovery, and restoration to labour by the 1st of June. I commenced by freely pencilling the ragged skin with a solution of mercury and nitric acid, having found that the skin, when allowed to remain, retards cicatrization, from its want of vitality. I visited the man and dressed the ulcers daily for a fortnight, at the expiration of which time he walked to my surgery, a distance of three miles, and by the middle of May resumed his labour (all the ulcers having healed), which he has continued to the present time, without the slightest return or inconvenience.

Mr. P. B——, aged fifty-eight, applied to me in the spring of 1854, having three ulcers on the left and one on the right leg, the largest the size of the disc of a wineglass, and of a great depth; the edges cartilaginous; legs hard and much enlarged, and of a deep-red colour; the wounds had resisted various kinds of treatment for upwards of ten years. On account of this man being exposed to the weather and his irregular habits, it was six months before all the ulcers had completely healed.

Mr. G. K——, aged forty-four, farmer, applied to me in the summer of 1854, having eight ulcers of the leg, varying in size from the disc of a wineglass to that of a half-crown piece deep, and of a phagedænic character; the limb very much thickened. He was tall, and had been very powerful and robust, but at this time was much emaciated from the great drain and extreme suffering. Had consulted several medical men without benefit. After the first month the man walked to my house, a distance of six miles, and before the close of the year all the ulcers had healed.

S. F——, aged sixty-seven, housekeeper, applied in June, 1854, having twenty-two wounds on the right leg, varying in size from a crown to a fourpenny piece, resulting from an accident fifteen years before; many of the wounds having resisted

various medical treatment, as well as quackery in every form, for that period of time. The limb was much enlarged; ulcers deep, with wiry edges, and pouring out a thin, green, ichorous discharge. The woman was much reduced, from extreme suffering day and night. Before the expiration of three months every ulcer had healed, and she was able to resume her situation, which is laborious, and she has not since found any inconvenience or return of her malady.

Mr. T. H—, aged forty-five, builder and carpenter, applied to me in July, 1854, having four large wounds on the right leg, one measuring eleven inches and a half by five inches wide, and a quarter of an inch in depth. The limb was much enlarged, and hard; skin of deep dark-red colour; edges of the wound ragged, and pouring out from each wound freely a thin sanies; veins varicose. The man's frame was gigantic, but very much emaciated. He stated that the wounds resulted from an accident; he had fallen through a ceiling in the year 1834, and had been suffering now twenty years. He had been under the care of many medical men, and at hospitals; was frequently confined to his bed for months together; at the time of consulting me he had been confined to his house for nine weeks. At the expiration of three weeks he resumed his labour, and at the close of September every wound had healed, and remained sound to the present time, although severely tested by having roughed it in superintending the railway at Balaklava.

Mr. G. T—, aged sixty, applied to me, on the 16th of November, 1855, with a large, dusky, indolent ulcer, extending over the upper portion of the shin and a great portion of the calf of the leg. He stated that forty years ago he received a compound fracture of the leg, several portions of bone coming away, and the wound remained open for several years; that about ten or twelve years ago it broke out again, and has from that time been gradually spreading, which unfitted him for labour, and prevented his walking any distance. He had consulted various medical men, and been in one of the metropolitan hospitals for ten weeks confined to bed. He left the hospital without benefit the same year he applied to me. After the first dressing he walked every other day to my surgery, a distance of eight miles, and within three weeks walked with ease in one day a distance exceeding twenty miles, and joined the coursing meetings at Bushy and Hampton-park on foot every week. The ulcers were healed by Feb. 17th, 1856, he having been less than three months under my care.

Margaret-street, Cavendish-square, 1856.

ON THE DIARRHŒA WHICH AFFECTED THE BRITISH ARMY IN THE CRIMEA IN 1854-55.

By W. M. MUIR, M.D., Surgeon 88rd Regiment.

(Communicated by Dr. ANDREW SMITH.)

Hospital, 88rd Regt., Jan. 11th, 1856.

SIR,—In reply to your "Circular Copy" of an

extract of a letter from the Director-General, in which he calls for information on the "Diarrhœa prevalent in Camp," I have the honour to submit the following observations as the result of my experience on the subject:—

The diarrhœa which has prevailed in the 88rd Regiment during its service in the Crimea, has been of *two* distinct kinds, arising from totally different causes. The *first* prevailed extensively last winter (from October till March, 1855), and was, in great measure, of a scorbutic character; the *second* manifested itself, and with a narrower radius of extension, during the hot months, (June, July, and August, 1855,) in association with sporadic cholera, colica, hepatic derangements, &c., and was due to other agencies. Unless this distinction be recognised, and clearly kept in view, there can be no agreement in opinion as to the symptomatology or treatment of the disease.

I. *The Diarrhœa of the Winter.*—This was the disease *par excellence* of the English army in the Crimea, and will long be recollected for its peculiarity, general prevalence, and fatality. I am not aware that it has ever figured in the category of camp diseases, probably because the circumstances in which it appeared are unique in the history of military operations. To say that it was scorbutic, is to indicate only half the truth. Scurvy was, no doubt, its great and efficient cause; but other agencies played a part, though perhaps a subordinate one, in its production. These arose out of the peculiar circumstances in which the army was placed, (without sufficient food, clothing, &c., and worn down by over work;) and which conspired, with scurvy, to exhaust the powers of the men's constitutions, to impoverish and alter the constitution of their blood. Prolonged abstinence from succulent vegetables and fruits (the *sole* condition of the production of scurvy) would not alone have engendered this disease; indeed, a constipated, rather than a loose, state of the bowels, is the more ordinary accompaniment of scurvy; but if to that tainted state of the whole system, which we represent by the term scorbutic diathesis, we super-add the effects of insufficient food, extreme cold, exhausted physical energy, and depressed moral powers, we shall be brought nearer to the true origin of the disease, and be better able to understand why the strain of this general diseased state should have been exerted chiefly on the *bowels*, and manifested itself in the form of diarrhœa.

Let us, for the sake of illustration, suppose the case of an individual who has become predisposed to scurvy by a three months almost total privation of fresh vegetables and fruits.* Let us suppose the same prejudicial influence continued for two or three months more. In this state of constitution let him be fed solely on badly or half-cooked salt pork and dry biscuit. Let him stand for twenty-four hours at a time in wet trenches, exposed to intense cold, and in a half-naked state, and for the next five or six hours turn into a damp tent, to sleep on a wet floor and in damp clothes. Let him

* This was the case with the army in Bulgaria.

be worked until he is ready to drop down from fatigue. Let him have his sleep constantly broken by calls of duty, and his spirits depressed by the daily spectacle of dying companions, and the hopelessness of his own preservation. Let this ordeal be extended to several months, and then say in what class of organs should we expect disease to manifest itself most readily and prominently?

The irritating quality of the food, the suppressed functions of the skin, the weakened tone of the digestive apparatus, the well-known effect of depressing passions,—all point to the *bowels* as the parts most likely to suffer, and furnish an outlet for that serous exudation of the blood, induced by its general impoverishment and scorbutic alteration.*

Now, the case supposed exactly represents the condition of the army in the Crimea, and furnishes the key, as it appears to me, to the origin and marked fatality of the diarrhœa in question. It was not only a form of scurvy, but it was something more. That something more would have not engendered it no more than it would have been produced by scurvy singly. It was the conjunction of the two which gave to this disease its peculiar character and unusual malignity.

If space permitted, it would not be difficult to show that the great proportion of the cases of fever, cholera, gelatio, dysentery, anasarca, rheumatism, and even catarrhal affections and sudden death, which figure in the Medical Returns of last winter as independent disorders, acknowledged the same origin, and were mere manifestations of the same diseased state under certain modifications. In fact, this scorbutic-anæmic diathesis (to coin a word for the occasion) pervaded and modified every state of diseased action at that time, and required to be taken into account both in diagnosis and treatment. The medical history of the first campaign of the army in the East is yet to be written, and the causes of its extraordinary sickness to be traced to their source, and its hidden features unmasked; and when such appears, it will form one of the most interesting chapters in military medicine.

Having made these remarks on the origin and nature of the diarrhœa which prevailed last winter, I now proceed to a description of its symptoms. The patient on admission was generally pale and thin; countenance of a sallow, dusky hue; tongue clean; lining membrane of mouth pale; gums spongy; and when the skin was examined, petechiæ, or other evidences of a scorbutic diathesis, were observable. The pulse was weak and slow, sometimes hurried; no febrile movement; appetite usually good, often ravenous; belly soft, with no pain or tenderness on pressure; skin dry and harsh; urine scanty and pale; the evacuations from the bowels watery, sometimes of a semi-consistent character, and of every shade of

colour from chalk to chocolate, but most commonly of a pink hue; sometimes altogether bloody (venous), but never exhibiting the characteristic dysenteric dejection; bile was almost always absent, or present only in small quantity, the colour seeming to have been furnished by blood rather than by bile. The calls to stool were frequent, often incessant, and not checked by opiates or astringents; they were generally without warning, and so sudden that the patient had not time to get to the close-stool, or, if a duty man, outside his tent, before his bowels discharged their contents. So much so was this the case, that the encampment of every regiment was each morning thickly dotted with evidences of these unseasonable calls of Nature, and offered a fertile field for studying the character of these unnatural excretions.

Death usually took place by asthenia. It was not unfrequently preceded by mortification of the toes, rapidly involving the foot; or a state of low, muttering delirium closed the scene. In three or four cases bloody urine was an accompaniment of the disease. There was great danger in moving a patient from one bed or tent to another, and not a few died soon after being removed.

I regret exceedingly that I had no opportunity, from the circumstances in which I was placed, of making a post-mortem examination of any fatal cases. Had I done so, I should probably have found the intestinal canal generally pale, with limited ecchymosed patches here and there, and perhaps a few small ulcerations in the mucous membrane of the colon; a pale and somewhat atrophied condition of the liver, with yellow or little bile in the gall-bladder, and evidences of serous effusion in most of the shut cavities. All this, however, is supposition, deduced from the *ensemble* of the symptoms and the predominant scorbutic character of the disease.

The indications of *treatment* correspond with the view I have presumed to take of the etiology of the disease—that is, two-fold. The first, to supply to the blood that peculiar but as yet unknown principle which exists in succulent vegetables and fruits or their preserved juices, and the abstraction or want of which is the proximate cause of scurvy; the second, to exalt the powers of life, and stimulate the enfeebled functions of every organ, by repairing the impoverished quality of the blood.

These conditions could only be fulfilled by the exhibition of antiscorbutics, combined with nourishing food, generous wine, rest, and warmth. Medicine, as might have been anticipated, was of no use, unless combined with, or employed after, these indispensable requisites. Removal to the rear, where alone the patient could command a warm bed, wholesome diet, and repose to mind and body, was the surest means of preserving his existence, and effecting the re-establishment of his health.

II. The diarrhœa of the summer was a different disease, and required a different management, from that which has just been described. It assailed chiefly the new comers, was of tractable character,

* Mr. Buak and M. Rouppé have disproved the prevalent notion that the blood is *impoverished* in scurvy, (the globules dissolved in the serum.) In the blood taken from the scorbutic patients, the separation into serum and clot was as perfect, and took place as rapidly, as in healthy blood. Their analysis, however, does not enable them to say what is the *peculiar* change of the blood in scurvy.

soon terminating in health, and leaving no bad effects behind. It seemed to be due to atmospheric changes—to the difference in temperature between day and night. The surface of the body, unnaturally excited to action by the solar heat, became suddenly chilled by the cold and dews of night and early morning. This sudden check to the perspiration, deranging the balance of the circulation, threw the blood inwards upon the bowels; hence the diarrhoea in question. As it was occasionally associated with sporadic cholera, the offensive state of the trenches and latrines there (to which cholera was traced) may also have exerted some influence in its production. The dejections were watery, but of feculent character; sometimes overcharged with, sometimes deficient in, bile, just in proportion as the liver was implicated, and moved, by the stimulus of heat, to greater functional activity, or total oppression. No case proved fatal, thus exhibiting its disalliance with the cachectic form, formerly described.

The cure of this form of diarrhoea was readily effected by measures directed to correct the functional derangements of the liver and skin, and maintained by the use of flannel worn night and day.

It is interesting, and may not be out of place, to remark, that this form of diarrhoea differed essentially from that which prevailed so extensively in Bulgaria in the autumn of 1854, in association with epidemic cholera, and which seems to have been chiefly caused and kept up by that peculiar state of the atmosphere denominated *choleraic*.

From the foregoing hasty and imperfect sketch of the forms of diarrhoea which I have met with in practice here, it will be seen that my observations and experience do not correspond with what it has fallen to Dr. Lyons to witness. I have not met with that form of disease which he has described, in which the egesta differ little from the ingesta; certainly not as the "diarrhoea prevalent in camp." Perhaps this disagreement may be in part explained by supposing that his remarks apply to my first form, when it was becoming modified by the improved condition of the army in the early spring—that is to say, when the scorbutic diathesis was removed, but the bowels remained still weak and irritable. In such circumstances, quinine offers a reasonable adjuvant of cure, and also of prophylaxis. In the cachectic form, its use was positively injurious, increasing the irritability of the bowels and quantity of the discharges.

Dr. Smith's suggestion, however, I shall not lose sight of, should that form of diarrhoea which Dr. Lyons describes, but which I have failed to recognise, come before me.

Dr. Hall, Inspector-General, Ormeau.

ON THE DIRECT ACTION OF STRYCHNINE UPON THE SPINAL CORD.

By GEORGE HARLEY, M.D.,

TEACHER OF PRACTICAL PHYSIOLOGY AND HISTOLOGY IN
UNIVERSITY COLLEGE, LONDON.

IN treating, on a former occasion,* of the physiological action of strychnine, I asserted that, to produce convulsions, the poison must be first absorbed and conveyed to the spinal cord by the bloodvessels. This being a view directly opposed to the opinion held by almost all the great physiologists of the present day, I feel called upon to support the assertion by something stronger than mere words, lest it should perhaps be regarded simply as a crude theory. I shall therefore quote the results of certain experiments which seem to prove that strychnine exerts no direct action upon the spinal cord.

Stilling, Valentin, Budge, Volkmann, Arnold, Ludwig, and, indeed, all recent writers upon the subject, appear to take for granted the doctrine of the direct action of strychnine on the spinal marrow. In corroboration of this view, Stilling† and others have cited numerous experiments upon frogs, where the animals were thrown into violent tetanic convulsions by the direct application of the poison to the spinal cord, even when the circulation had been interrupted by the excision of the heart. These experiments I have repeated, and the results have been in accordance with the statements of previous observers. But the results furnished by other experiments, made with the view of still further elucidating the point, have led me to believe that Stilling and his followers, although correct in their observation, have yet erred in concluding that tetanus proceeds from the direct contact of strychnine with the nervous substance of the spinal cord, and in not rather imputing the action of the poison to its having been absorbed by the capillaries of the cord and vertebral canal, and conveyed with the blood to the nervous substance.

The following experiments will, I think, prove the justness of the latter supposition:—

When, instead of dropping the solution of strychnine upon the frog's spinal marrow as it lay in the vertebral canal, I first carefully isolated upon a piece of oil-silk about half an inch of the cord, immediately below the brachial enlargement,‡ and separated throughout a short extent its lateral halves, in order to form a sort of cup for the better reception of the poison, I found that a concentrated solution of the acetate of strychnine might be retained in the hollow of the cord, even when the heart had been left untouched, without any symptoms of tetanus supervening. The animals so treated usually survived the operation for two hours, and remained

* THE LANCET, August No. page 144.

† Untersuchungen über das Rückenmark und die Nerven, p. 68. 1849.

‡ The isolation could not be accomplished higher up without cutting through the origins of the brachial n. ves, which would have been speedily followed by the death of the animal.

free from all symptoms of poisoning, unless some of the strychnine accidentally found its way along the side of the cord into the vertebral canal. From this I inferred that strychnine does not act directly upon the spinal cord. There being still, however, a possibility that the poison might have a direct action upon the upper portion of the spinal marrow, even although it failed in producing an effect upon the lower, where, instead of being in contact with the true nervous substance of the spinal cord, it might have only reached the roots of the sacral nerves, whose origins are very high up, (in which case the non-appearance of poisoning might have been due to the previous known fact of strychnine not acting directly upon the nerves,) I turned my attention to another reptile, the toad, (*Bufo vulgaris*.) In this animal, the cord can be isolated in the upper portion of the dorsal region without the operation inducing immediate death. The experiments upon the toad showed, equally with those made on the frog, (*Rana temporaria*), that the direct application of the acetate of strychnine to the isolated spinal cord is not followed by tetanic convulsions, or by any other symptom of poisoning.

Convinced by a repetition of these experiments that the non-appearance of tetanus was not due to any error in manipulation, I turned from cold to warm-blooded animals, in order to ascertain if the spinal marrow was here equally insensible to the direct application of strychnine. The result of the first attempt was fortunately so decisive, that it did not appear necessary to make further experiments. It was as follows:—

The vertebral canal of a young cat (a third grown) was opened in the dorsal region between the eighth and thirteenth vertebrae, and the cord carefully isolated upon oil-silk to the extent of an inch. The dura mater and arachnoid membrane were then gently removed, and, lastly, the vascular pia mater delicately detached from around the cord throughout half an inch. Having thus rendered the experiment as far as possible independent of the interference of the bloodvessels, the lateral columns of the cord were separated longitudinally, and into the little cavity thus formed was introduced a super-saturated solution of the acetate of strychnine. No symptoms of tetanus presenting themselves at the end of ten minutes, the cavity was slightly enlarged, and more of the solution added. A renewed interval of five minutes having elapsed, and there being still no symptoms of convulsions, the cavity in the cord was sponged out, and refilled with a fresh portion of strychnine. After waiting seven minutes longer (twenty-two minutes in all) without the slightest manifestation of poisoning, I felt perfectly satisfied that strychnine, when directly applied to the nerve-substance of the spinal marrow, does not possess the power imputed to it of producing tetanus. But still further to satisfy myself that the non-appearance of convulsions was not due to any lack of poisonous qualities in the solution employed, I dissected the skin from one of the femoral veins, and brought a third of the quantity

of the solution which was applied to the cord into contact with, the external surface of the blood-vessel. In one minute and three-quarters the animal became violently tetanic *throughout the whole body*. The cord was divided at the exposed part without the tetanus disappearing from the lower extremities. This shows that the effect of the poison is not limited to any particular part of the spinal marrow.

A more conclusive result than the above can scarcely, I think, be desired, to prove the inability of strychnine to cause tetanus by a direct action upon the spinal cord. Had the membranes of the cord and their vessels not been removed before the application of the poison, tetanus would most probably have supervened, just as happened in the experiments upon the frogs, when the cord was not carefully isolated. The occasional occurrence of tetanus in frogs after excision of the heart is easily accounted for, on the supposition that the poison, when applied to the cord, finds its way into the neighbouring capillaries, before their circulation has entirely ceased, and is conveyed with the blood to the nerve-substance. This supposition is warranted, on the ground that the circulation in the web of the frog's foot is distinctly visible for some time after excision of the heart, and strengthened by the absence of any data disproving the probability of the circulation in other parts of the body being to a similar degree independent of the cardiac impulse. The occasional negative results in the one case cannot therefore be looked upon as lessening the value of the positive effects in the other, although the latter experiments are by far the less numerous. The following is another experiment, which not only confirms the foregoing, but shows the progressive advance of the effects of strychnine on the cord, while at the same time it illustrates in a striking manner the independent action of different parts of the spinal nerve centres.

The vertebral canal of a snake (*Coluber natrix*), three feet long, was opened at the union of the upper and middle third; the cord was next isolated on oil-silk, and an inch of the pia mater, with its vessels, carefully removed. A few drops of the supra-saturated solution of strychnine were kept during thirteen minutes in contact with the exposed nerve substance, without producing the least symptom of tetanus. The oil-silk was then removed, and the cord allowed to slip back into the vertebral canal, and some of the solution of the poison was introduced into an opening made in the thorax. The animal, which had been previously breathing very slowly, began in a short time to respire more rapidly, and in six minutes symptoms of impending tetanus became apparent. The spasms first became visible in the muscles about the neck, and very gradually descended along the vertebral column, till, in about two minutes they had reached the tail. This gradual progress of tetanus is beautifully apparent in a long-bodied animal like a snake, and the distinctness of the advance is also better marked, probably on account of the slow circulation of the blood. The spinal cord was afterwards divided at

the exposed part, and the tetanus in the upper part was seen to be independent of that in the lower, and *vice versa*. The mutual independence of the different portions of the cord was not so striking until after the animal had become somewhat exhausted. When the intervals between the spasms became considerable, it was interesting to see how irritation applied to the tail caused gradual tetanus up to the point of section, but not beyond it. When, on the other hand, irritation was applied to the head, the tetanus gradually travelled as far down as the point of section, and for about two inches beyond, in the muscles, doubtless, which received their nerves from the lower part of the upper portion of the cord. At first, the tetanic movement in these muscles was sufficiently strong to excite spasm in the lower portion of the body; but afterwards, as the animal became more exhausted, and the spasms less violent, while the stimulus required to call them into play was greater, the tetanus could not be communicated from the muscles in the lower to the upper, nor from the upper to the lower, portion of the vertebral column. This clearly proves that the indirect action of strychnine is not limited to one particular part of the cord.

It appears strange that the poison, when directly applied to the spinal cord, did not affect the nerve substance through entering it, either by imbibition or deosmose. Can it be possible that poisons deosmotically absorbed are not assimilated by the nervous system? or do they first require to undergo a change in the blood before they can act? That strychnine should produce convulsions when carried to the spinal cord by the bloodvessels, and not when directly applied, is certainly very remarkable. The solvent in each case is the same, the liquid part of the blood being nothing more or less than water, and the bloodvessels cannot bring the poison into more intimate connexion with the nerve-tubes than the hand can; for the ultimate capillaries do not enter the nerve-tubes, but only ramify on their exterior. If, therefore, the poison really acts upon the contents of the nerve-tubes, it must, to reach their interior, first pass by deosmose through the external sheath; and deosmose being a purely physical process, it matters not how, or by what means, the substance is brought into contact with the membranous tube of the nerve; for once there, its after-progress is in all cases identical. Now, as we have brought strychnine into the most favourable circumstances for the development of its action upon nerve substance, and no result has followed, we are forced to conclude that strychnine has no direct chemical or physical action on nerve matter. Seeing that the poison acts when conveyed by the bloodvessels, we must try and discover whether or not it is transformed in the blood into a more active poison, or if, though not itself transformed, it yet possesses the power of so modifying the organic constituents of the blood, as to render them not only useless for the purpose of nutrition, but even pernicious. Chemistry has as yet failed to reveal whether or not strychnine is decomposed and transformed in the blood into another substance more

baneful than itself; but it has shown,* that the poison possesses the property of so modifying the organic constituents of the blood as to render them incapable of absorbing oxygen and exhaling carbonic acid, and thus becoming fitted for the purpose of nutrition. It is well known, that "the continual afflux of scarlet blood is a condition very important to the normal molecular constitution of the nervous centres. This proposition especially holds good with mammals and birds; but is less strictly applicable to reptiles and fishes, in whom the interchange of the gases is less active."† When the oxidized materials required as nourishment by the nervous system are either deficient in quantity, or impaired in quality, disordered function of the nerves is the immediate result. We have a most striking example of the former condition in cases of hæmorrhage, where an insufficient supply of the oxidized substances is not unfrequently followed by convulsions; the latter is exemplified in cases where oxygen is prevented from entering the blood, and consequently the organic substances fail to become oxidized and fitted for their peculiar office. Lastly, the same thing occurs when even both the oxygen and the organic substances are present, but where the oxidizing process is either partially or totally arrested by the presence of a foreign substance possessing the property of hindering the constituents of the blood from combining with oxygen. Derangement in the function performed by the molecules of the nervous system occurs just as surely in the latter example as when either the oxygen alone, as in the second instance, or both the oxygen and the oxidizable materials, as in the first case, are wanting. Strychnine, I believe, from the results of the cited experiments, acts in the third of the three ways—that is to say, it has no immediate effect upon the nervous system, but acts indirectly through the power it possesses over the functions of the organic constituents of the blood. Many other poisons, I doubt not, exert their influence in a similar manner; for I have found, that hydrocyanic acid, chloroform, nicotine, alcohol, ether, morphine, and several other narcotics, have the same power of destroying the property possessed by the organic constituents of the blood of absorbing oxygen and exhaling carbonic acid.

A more particular study of the effects of different substances on the blood may yet not only furnish a clue to the actions of poisons in particular, but afford a direct explanation of the physiological action of remedies in general; and the more speedily our knowledge in that direction advances, the more rapidly will medicine be raised to its proper position amongst the inductive sciences.

ON A CASE OF ATTEMPTED SUICIDE BY NUX VOMICA.

By JOHN HORAN, Esq., M.R.C.S.L., &c., Beaminster.

On the morning of June 10th I was called to a labouring man, aged thirty-five, the father of

* THE LANCET, August No.

† *Valentin's Physiology*, translated by Briston.

several children, and of very intemperate habits. On my arrival, at half-past one A.M., I found him bathed in perspiration; the breathing was slightly accelerated; pupils regular. He looked very excited, and complained of twitchings all over his body. I had not been long present when I observed a strong and general tetanic spasm, and which was very much increased when an attempt was made to wipe the perspiration from his face. My suspicions of the case were now roused, and on questioning him, he at once acknowledged that he had taken poison. The patient was quite collected and rational, and during the intervals of the spasm he answered questions freely. He could not tell what the poison was, more than that a fortnight previously he purchased one pennyworth at the druggist's for the purpose of poisoning rats, &c.

I examined the vessel, and found traces of a brown powder, which, with the symptoms present, at once revealed the case to be one of poisoning by nux vomica, or its alkaloid, strychnine. He further stated that he had taken the poison at eleven o'clock, soon after which he undressed and got to bed, where he had not long been till he was seized with the spasm.

Now, upwards of two hours elapsed before I had seen him, and then the spasm was not so continuous or violent as it had been previous to their sending for me. I at once gave him a strong emetic of sulphate of zinc, which had the effect of unloading the stomach, mixed with the contents of which was a large quantity of green and undigested cabbage, which no doubt shielded the mucous membrane, and prevented the quick absorption of the poison. After sickness was produced, the tetanic spasm entirely ceased. On inquiry next morning at the druggist's, I was informed that they usually sell a quarter ounce of powdered nux vomica for one penny; and on reference to medical works, I find only one case of recovery recorded from so large a dose, and that by Mr. Iliff.

I have every reason to believe that he took the whole quantity which he purchased, very little traces remaining on the vessel; and furthermore, my firm conviction is that the man's life was saved through the quantity of cabbage which the stomach contained.

At my visit next morning the patient said he was quite well, but felt stiff and tired, as if he had been beaten, or after some unusual or severe exercise.

June, 1864.

ON STRICTURE OF THE URETHRA, COMBINED WITH FISTULÆ, AND CALCULUS IN THE BLADDER; LITHOTOMY.

By W. Seth Gill, M.R.C.S.E., Pentonville.

In this case, G. G——, aged sixty-five, applied to me in the early part of this year, suffering at the time from bilious diarrhoea, when, with tears rolling down his cheeks, he stated "that he had suffered from stricture thirty years, urinary ab-

scences and fistulæ; had been under the care of several hospital surgeons, and only occasionally relieved; that he was then under treatment, and had been for three years, and that a practitioner was still dilating the urethra twice or three times a week; that he did not progress satisfactorily; indeed, that he was tired of trying." He also said that he had resided in the house of a surgeon for nearly two years, without any diminution of his symptoms; had paid an enormous amount for that accommodation and medicines, and he almost despaired of ever again being free from pain. I endeavoured to cheer him; and proposed a "consultation" with the gentleman in question, which was carried out on two or three occasions. The patient not feeling any better, and considering, as he stated, that his "old friend had done all he could for him," he was anxious for further advice, and asked me to recommend some one celebrated for the treatment of stricture. Having repeatedly witnessed the success of Mr. Thomas Wakley's method of rapid dilatation, and having been led to suppose, from the conversations and consultations, that the sufferer was labouring under stricture and its effects, I mentioned the name of Mr. T. Wakley, and at the same time proposed that the gentleman previously consulted should be present. To this the patient objected, and thought it unnecessary. Consequently the treatment was left to Mr. Wakley and myself; and in about ten days a No. 12 tube was easily introduced. The fistula had healed, and the urine flowed copiously. We considered him cured, but were disappointed at the distressing symptoms continuing, which we were unable to account for satisfactorily. It was agreed that, on our next visit, a large sound should be passed into the bladder, when a diligent search terminated in the discovery of a stone. We pointed out to our patient that this had given rise to much of his suffering, and that the only chance of his perfect restoration was the removal of the calculus; that in his present state he could not be cured, nor live long. He expressed his alarm and surprise that others should have passed this over without discovery; and on his wishing to undergo the operation—"for," he added, "his life was a perfect misery"—it was deemed prudent that our own convictions should be supported by a third party, whose claims upon the public were established, and whose merits deserve the distinction he so generously receives; that gentleman was Mr. Coulson, who examined the patient, and confirmed our discovery. On account of our patient's excitement and the nervous irritability under which he laboured, it was thought prudent to perform the operation at once, he having had the necessary medical treatment in contemplation that such would be the case.

On June 21st, the patient having been subjected to the influence of chloroform by me, the operation, as remarked by Mr. Coulson, was "admirably performed" by Mr. T. Wakley. The calculus was lodged in a sac, and proved to be exceedingly friable, and separated into numerous fragments. In four or five minutes, however, the whole of

them were removed, and the bladder carefully injected. Besides Mr. Coulson, Mr. Wakley, and myself, Mr. De Méric, Mr. Cartwright, and Mr. Coulson, jun., were present. The case progressed most satisfactorily; no hæmorrhage, no peritonitis; the urine flowed in six hours through the urethra and wound, and continued to do so till his decease. The patient, the same evening, acknowledged his emancipation from the enemy and his comparative ease, and congratulated himself that his strength of mind, in combination with the skill that had been exercised and the kindness he had received, had rescued him from so fierce a tormentor. He continued to do well until the third day, when symptoms of exhaustion set in, with retching. He was given effervescing medicines, with morphia, and injections of beef-tea and stimulants were administered with little or no effect; and he sank on the fifth day from complete exhaustion.

A post-mortem examination was proposed by Mr. Wakley, but not acquiesced in by the landlady, on account of the oppressive heat of the atmosphere, and having other inmates occupying her apartments. That the bladder was extensively diseased cannot be doubted. The urine was highly ammoniacal and foetid, and its muco-purulent and jelly-like character was maintained, despite the antidotes and remedies adopted.

It was very unfortunate that the calculus remained undiscovered for so long a period, and until Mr. Wakley was consulted and examined the patient. By means of the tubular bougies the stricture was removed with great rapidity; and had not all the symptoms been referred for several years to the existence of that disease, the stone might have been discovered and extracted, and the life of the patient much prolonged. The case is instructive, and proves most indisputably with what care examinations of diseases of the genital organs should be made before a diagnosis be pronounced or a prognosis given.

July 8th, 1864.

Sketches
OF THE
SURGERY OF THE WAR,
FROM
THE MILITARY HOSPITAL, PORTSMOUTH,
(January, 1855, to May, 1856.)
By THOMAS H. BURGESS, M.D.

No. II.

GUN-SHOT WOUNDS.

THE cases of gun-shot wounds received from the Crimea into the Military Hospital at Portsmouth in 1855-56 were chiefly produced by round shot, shell, and the conical Minié ball. The wounds caused by the latter were more intractable than those occasioned by either of the other projectiles; the tissues were more injured, the bone more shattered, and the suppuration more profuse. In some

instances from twenty-five to thirty splinters of bone came away during the treatment, and the parts ultimately coalesced, and the external wound healed up. But the most remarkable circumstance connected with all these wounds, whether from shot, shell, or Minié ball, was the state of the general health of the invalids, which in the great majority of cases was excellent, and seemed to be little affected even by the continued drain of suppuration, sometimes kept up for months. In this respect the wounded men contrasted most favourably with the miserable victims of fever and dysentery, who had scarcely a shred of a constitution left when admitted into this hospital, and who required the tenderest solicitude, and most delicate food,* as blancmange, jellies, wines, &c., (of which there was no stint,) to keep soul and body together.

The following interesting case, though not a gun-shot wound, may not inappropriately be inserted here:—

CASE 8.—*Bloody Tumour*.—Corporal Wm. Wilson, 31st Regiment, No. 2879, aged thirty years, was admitted into the Garrison Hospital at Portsea on the 2nd of August, 1855, under my charge. He stated that while marching with the Regiment in Zanté, on the 5th of May, 1855, he suddenly felt pain in the posterior part of the right thigh, about the centre, which incapacitated him for further service. He was admitted into hospital, where he remained one week, and then proceeded to Corfu, where he was not admitted into hospital.

On his admission into this hospital, a large, solid, non-pulsating tumour appeared on the inside of the right thigh, about the middle, and was seated over the femoral artery. It was of an oblong form, extended from four to five inches, of a dark, brownish colour, and caused intense pain. The patient could not rest by day or night from the pain. A consultation was held upon the case by the medical staff, when various opinions were pronounced as to the nature of the tumour. It was supposed to be a "malignant tumour," a "fibrous tumour," or "medullary sarcoma," but the exact nature of it was very obscure. I was certain that some decisive measures must be had recourse to speedily, as the pain was so intense that the patient was constantly craving for chloroform to deaden his anguish, and the tumour was extending and getting very dark-coloured.

Aug. 5th.—Having made all the necessary preparations for any emergency that might arise, and placing a tourniquet over the femoral artery, an exploring needle was passed into the most prominent point of the tumour, but neither blood nor pus appeared. A lancet was then passed into the tumour, without any trace of blood or matter. It was finally laid open by a free incision, about three inches long, when a large clot of coagulated blood, giving a putrid smell, came away, which

* I believe I am correct in stating, it was the desire of the Director-General that the medical officers in charge of the Crimean invalids in the hospital should be unrestricted in the administration of medical comforts, and to this judicious decision is due the recovery of many a patient, for whom physis was of no possible use. Many patients have passed through the hospital, who had to be fed and nursed like infants.—F. B.

was soon followed by several others. This gave immediate relief, the patient stating that he felt the pain leave him simultaneously with the discharge of the first clot. A slight weeping of dark-coloured blood occurred during the night, but no unfavourable symptom. When the dressing was removed next morning, a large clot, similar in colour and consistence to the others, came away.

10th.—No untoward symptom appeared since the incision was made. Blood of a dark venous appearance continues to ooze from the wound in small quantity. The patient continues to feel comfortable, and entirely free from pain.

12th.—Removed the external clot this morning, and pressed out a considerable quantity of the same dark, grumous, decomposed blood, of a most offensive character. The deformity of the limb disappeared. The parts were greatly diminished in size, and nearly natural. The lips of the wound were brought together by adhesive plaster, and the limb bandaged. Patient reports himself comfortable and free from pain, but is slightly feverish and nervous.

Generous diet, steel wine, and moselle, were the only internal remedies employed during the progress of the case.

14th.—Is much better to-day. Discharge of coagulated blood has entirely ceased, and is succeeded by a thin serous fluid, not coloured by blood, mingled with shreds of decomposed cellular tissue.

16th.—Pus of a healthy character is freely discharged; limb free from pain; general health good.

20th.—Continues to progress favourably. Free discharge of pus.

*25th.—No unfavourable symptom since last report. Appetite good; skin cool; pulse natural.

30th.—Discharge every trifling; wound closing in and healing; general health much improved.

Sept. 1st.—No alteration since last report.

5th.—Quite convalescent. Wound nearly closed and filled up.

10th.—Wound closed. Patient walking about the verandahs.

15th.—Perfectly recovered.

20th.—Discharged to Chichester, and to his duty.

CASE 9.—*Round-shot Wound*.—Private William Shepperd, aged eighteen years, admitted into Garrison Hospital, Portsmouth, on the 29th of July, 1855, with gun-shot wound (canister) in the left leg, received during the cavalry charge at Bala-klava, on the 25th of October, 1854. Several pieces of bone came away while he was a prisoner in Russia, but none came away since his admission into this hospital. He is now doing well.

This invalid makes the following statement respecting the famous cavalry charge:—

When the English cavalry arrived on the flank of the Russian guns, they were met by a body of Cossacks. They passed right through the guns, and when about thirty yards behind them, wheeled about, without hearing any orders given or seeing any officers to give orders, and retreated. He was one of a group of forty men. Lord George Paget

and Colonel Douglas met during this scrambling retreat. A body of Russian Lancers endeavoured to impede them, when an order was given—"Left incline." He escaped these Russians, and when he got about thirty yards nearer head-quarters, was struck in the left leg by a canister-shot. His horse was stunned, and made a dead halt. He was immediately knocked off his horse by the Russian Lancers; got up, and tried to escape, but the bullets flying so thick and fast about him, he lay down, and in about ten minutes was taken prisoner. A Russian officer dismounted and put the patient on his own horse, and ordered him to be conveyed to where the Russian infantry were stationed, and thence on a stretcher to the rear. During the retreat, he saw the Russian cavalry mercilessly lancing the disabled and wounded men lying on the ground, even when holding up their hands for mercy. He remained three days at the rear, and was then conveyed in a cart to Simpheropol—a two night's journey. Remained at Simpheropol from the 29th of October to the 12th of May, 1855, and was then taken to Odessa with two others, supposed to be disabled and unfit for further service. The journey to Odessa lasted six days. Remained at that town until the 3d of June, when he and his two comrades were exchanged on board H. M. S. *Cyclops*, lying in the roads. While a prisoner, he got better food than the Russian soldiers, but still not sufficient: one pound of bread and three ounces of meat in twenty-four hours, with soup twice a day; sometimes had tea in the morning. Says the Russian medical officers treated him very kindly. The military officers frequently gave them small sums of money out of their own pockets, and they got plenty of tobacco and handkerchiefs from gentlemen and ladies in Odessa. Was discharged to Chatham from this hospital on the 24th of August, 1855.

CASE 10.—*Shell Wound*.—Private John Arms, Coldstream Guards, aged forty, arrived by H.M. ship *Neptune* on the 10th of February, 1855, and was admitted into the Garrison Hospital on the same day, with extensive shell wound, carrying off the whole of the left buttock, so as to leave the bone exposed. Wounded at Inkermann by the explosion of a shell, which carried away the greater part of the gluteal muscles of the left side. This wound healed, with the exception of a spot the size of a dollar; but in consequence of the roughness of the voyage homeward, it sloughed again to nearly its original size, and on admission presented a large black slough, of great depth, extending over the entire wound. There was slight hæmorrhage from one spot.

Feb. 14th.—Large masses of slough have come away, leaving the surface beneath covered with pus. The smell is so foul and offensive, that the orderlies refuse to go near the wound, and one of them has already sickened from it. The terchloride of carbon, and other disinfecting agents, are constantly employed, day and night.

15th.—Was delirious last night.

17th.—Bowels freely relaxed; smell from wound putrid.

20th.—Great prostration of strength; slough assuming the character and appearance of hospital gangrene.

The patient lingered on in this deplorable condition, supported by tonics and stimulants, until the 1st of March, when he died. A few hours after death, the body was so putrescent that no one could go near it.

CASE 11.—*Shell Wound*.—Private Alfred Jackson, aged twenty, 7th Regiment, admitted under the care of Mr. Wright. Wounded, on the 15th of November, 1855, by a shell, from the accidental explosion of gunpowder in the French artillery dépôt. He was one of a working party on the permanent road works, at about the distance of half a mile from the scene of explosion. A portion of shell struck him on the inside of the left thigh, causing a large lacerated wound on its middle third. He was in the act of wheeling a handbarrow at the time he was struck. He suffered much on board ship from the formation of abscesses. On his admission into this hospital, on the 16th of February, 1856, the wound showed a tendency to heal, the granulations being healthy, but he was in a very weak state of health.

Feb. 24th.—The wound is still tending to heal kindly, and his general health has much improved.

March 3rd.—The wound is looking far from well; its edges are inflamed, and the surface tender and painful; granulations weak.

8th.—The ulcer has now fairly taken on a sloughing action, spreading in depth more than in breadth; his skin is hot and dry; pulse quick and small.

11th.—The sloughs have begun to come away, showing beneath them granulations of a weakly kind.

12th.—The deep sloughs have come away, leaving granulations of rather a healthy kind beneath; the upper and deep part of the ulcer lies over the side of the femoral artery as it passes through Hunter's canal.—Three P.M.: Hæmorrhage of an arterial colour has just taken place from a small artery, which was easily restrained by pressure.—Eight P.M.: Arterial hæmorrhage again commenced, which has been checked by tincture of matico and slight pressure; his pulse is very weak, but quick, and his thirst is great.

18th.—Hæmorrhage (arterial) has again begun, (eleven A.M.) but was easily restrained. He now must have lost seven or eight ounces of blood. His face is anæmic; feels very faint; pulse scarcely perceptible, and extremities cold. (Stimulants were given.)

14th.—Has slept well last night. At seven A.M., hæmorrhage again set in, which was controlled by gentle pressure, after having lost about three or four ounces of blood. He is now in an exceedingly weak state; pulse thready.

15th.—Wound dressed this morning; discharge fetid, and in a large quantity, mixed with gangrenous sloughs; he feels himself rather better, and has been able to eat a little food this morning.

16th.—Wound still looking unhealthy. Nitric acid, diluted, has been freely applied over its surface.

18th.—The sloughs have now begun to come away, showing beneath them healthy granulations. His appetite, within the last two days, has improved, his bowels are regular, and he is now gaining some strength.

22nd.—Proceeding most favourably; his health is greatly improved, and the ulcer is healing.

29th.—Complains of slight pain on the inner side of the thigh, about one inch above the ulcer. At this spot, there is redness, hardness, and pain; it is the seat of an abscess. The ulcer itself looks well, and his general health has greatly improved.

30th.—Opened the abscess to-day, and a quantity of healthy matter escaped.

April 8th.—Progressing favourably; granulations of ulcer healthy; discharge healthy; and his general health is good.

20th.—Health excellent; wound all but cicatrized.

30th.—Almost healed; only a few granulations of a weak type are at the extremities of the wound; abscess healed.

May 5th.—Discharged to Chichester.

The treatment of the above case was simply a generous diet, with astringents and tonics internally. The local application was, at first, nitric acid lotion (acid. nit. dil., three drachms; aq. font., one ounce); and afterwards, the zinc lotion (sulph. zinci, five grains; tr. lavand. co., twenty drops; aqua, six ounces); under which treatment the ulcer gradually healed.

CASE 12.—Private George Hill, aged thirty, 3rd Regiment, was admitted into the Military Hospital, Portsea, on December 2nd, 1855, under the care of Mr. Wright, suffering from the effects of a gunshot wound of the left foot, received at the attack on the Redan, September 8th. The ball entered at the outer side of the foot, close to the ankle-joint. The foot was greatly swollen, and in it existed two openings; one, the entrance of the ball, situated as above-mentioned; the other exactly opposite, on the inner side of the foot, where it was thought the ball had made its exit. On introducing the probe into the wound on the inner side of the foot, neither a foreign body nor a dead bone could be felt; but on introducing the probe into the outer opening, small pieces of rough and dead bone could easily be detected. From both openings the discharge is considerable. He has little or no motion in the foot, and but little in the ankle-joint. His health is pretty good.

Dec. 30th.—During the past month his general health has greatly improved, the swelling of the foot has diminished, and numerous small pieces of bone have come away, none of them larger than a small shirt-button. Warm-water dressing to be applied to the foot.

Jan. 2nd, 1856.—Around the outer opening there is considerable inflammation. The discharge has become fetid, but still nothing can be felt by the probe to cause this change. A poultice to be applied over the foot.

6th.—This morning a piece of softened leather came out of the opening; it was a piece of his boot, which had been driven in by the ball. The

inner opening has greatly contracted in size. Warm-water dressing to be applied.

31st.—Since the piece of leather came away, the foot has been quite easy, and the swelling greatly diminished. Discharge from both openings trifling, and the openings themselves are contracting.

Feb. 22nd.—Since the above report, he had been progressing favourably up to last evening, when he complained of pain near the outer opening. It was greatly inflamed for about one inch around the opening. Ordered a poultice to be applied, and on examining the wound this morning I detected fluctuation at its outer side. I made a free incision into it, and a quantity of foetid matter escaped. On introducing a probe and detecting a foreign body, I extracted it with the dressing-forceps; it was another piece of leather, about an inch by half-an-inch in size. Warm-water dressing to be continued.

29th.—Since the removal of the piece of leather he has felt the foot exceedingly easy; the openings have again contracted to a great extent, and they now will scarcely admit of the introduction of a probe. Discharge almost ceased.

March 3rd.—Inner opening entirely closed.

24th.—On the 13th, as well as this morning, I removed two small pieces of bone from the outer opening; and, on carefully introducing the probe, I could detect a piece of dead bone deeply situated in the foot. The discharge from the opening remains trifling, scarcely covering a piece of lint the size of a shilling.

April 12th.—Finding no pieces of bone to have come away since I last examined the foot with the probe, I again introduced it, and found that the bone I had formerly felt had melted away in the discharge, and a foreign body could now be felt, giving to the hand the feeling as if it were a bullet; it was firmly impacted in bone, and could not be moved. The water-dressing to be continued.

24th.—The probe can now be passed round the ball, which has become loose; the discharge is foetid, and mixed with blood; the ball has given rise to no irritation whatever; and at present there is no symptom of inflammation.

28th.—Since the 24th, I have every evening introduced a sponge-tent into the outer opening, commencing with one of a very small size, and increasing them in size every evening; and to-day, finding the opening of sufficient size, I put the patient under the influence of chloroform, and the forceps were introduced, the ball caught hold of, but it was found impossible to withdraw it. The forceps were now withdrawn, and the finger introduced, when it was found that the ball though loose was encased in a cage of bone, and that it could not be withdrawn without making a large incision through skin and muscle, and laying open the cage with a pair of bone-pliers; it was, therefore, thought advisable to wait for a few days.

May 4th.—On carefully introducing the probe to-day, I found the ball to have shifted its place, and to be now nearer the surface. The attempt to extract the ball caused no irritation.

8th.—For the last two evenings I have carefully

introduced sponge-tents, of a large size, into the opening; and to-day, finding the opening to be enlarged to a considerable extent, I put the patient under chloroform, introduced the forceps, caught a firm hold of the ball, and extracted it, much to the patient's delight on his awaking from the effects of the chloroform. Cold-water dressings to be applied.

20th.—The sinus is now slowly granulating from the bottom, and the discharge is but little. In standing, the heel is raised about one inch above the ground; and, in walking, the weight of his body rests on the ball of the foot, on which he is nearly able to rest his whole weight. The motions of the ankle-joint have increased, and there is no doubt, from the present appearance of the foot, that he will, after a little time, be able to use the wounded foot freely.

No. III.

GUN-SHOT WOUNDS, FROST-BITE AND INJURY OF THE SPINE, AND PARALYSIS.

The following cases are selected from a number of others, from their great interest in a medical and surgical point of view. Case 13 is a serious case of gun-shot wound and secondary hemorrhage, resisting the ordinary means of treatment, and with difficulty arrested. Case 14 is a good illustration of those intractable forms of frost-bite sent home from the Crimea; it required amputation of both legs, after exhausting all the ingenuity of conservative surgery to preserve the limbs. Case 15 shows the beneficial effects of strychnia in certain injuries of the spine, causing paralysis of the lower extremities; and Case 16 illustrates the prompt therapeutic effect of the same powerful drug in cases of functional paralysis of both upper and lower extremities.

CASE 13.—*Gun-shot Wound; Secondary Hemorrhage.*—Private M. Fagan, aged twenty-nine, 49th Regiment, admitted under the care of Mr. Wright, who gives the following statement of the case:—Was wounded on the 7th of June, 1855, in the right knee, by a musket ball, which entered, and remaining in the joint, amputation was performed. On his admission into the Garrison Hospital, Portsea, on August 27th, 1855, a large open granulating sore covered nearly the whole surface of the stump, and at the upper and anterior part of which the end of the femur protruded, in consequence of repeated sloughing having taken place in the stump on board the transport in which he was brought home from the Crimea.

September 12th.—The stump is now nearly healed, and by means of careful bandaging, the flesh has been brought forwards so as to entirely cover the protruding femur. His general health has greatly improved, and he is daily gaining strength.

25th.—Stump entirely healed, and he goes out daily in the verandah on crutches.

26th.—Whilst walking down-stairs to-day, his crutches slipped, and he fell with all his weight on

the stump, and drove the femur through it. I was immediately sent for, as hæmorrhage of an arterial character had commenced rather freely. I applied a compress and bandage, which instantly checked the flow of blood. On visiting the patient in the evening, at eight P.M., I found that hæmorrhage had again begun, and that the pads and bandages had been removed; the face of the stump was exposed; no bleeding-point could be seen; nothing but a general oozing of arterial blood from the sides of the bone had caused this alarming hæmorrhage. He was now exceedingly weak; face blanched; pulse small and feeble. The French styptic (*baume compingnt brevété*) was applied, but failed to arrest the hæmorrhage; pads and a bandage were again carefully applied, and for the time the hæmorrhage was checked. At half-past ten P.M. I was again sent for, as the stump was bleeding profusely. I undid all the bandages, and removed the pads; no bleeding-point was to be seen; it was still a general oozing of arterial blood. I now rubbed the whole surface of the stump over with nitrate of silver, and applied a piece of lint dipped in the tincture of the muriate of iron over its face, and bandaged firmly the stump. At two A.M. no further hæmorrhage had occurred, and he had had a short and quiet sleep, under the influence of a draught of morphia.

27th.—Eight A.M.: No more hæmorrhage has occurred, and he has been asleep the greater part of the day.—Nine P.M.: Feels very comfortable: bandages not even stained with blood.

28th.—Has slept well during the night; complains only of the tightness of the bandage.

29th.—I was called out of bed this morning at half-past five o'clock, hæmorrhage having again returned; but by the time I arrived at his bedside it had ceased. The bedclothes were saturated with arterial blood, of which he must have lost by this time three or four ounces.

October 2nd.—I carefully removed the dressings to-day; a slough covered the lower part of the wound only, the upper being covered with granulations, weak in character. Zinc lotion to be applied.

6th.—Sloughs have entirely disappeared, and the stump presents now nothing but healthy granulations, tending to heal, and he himself has begun to gain a little strength; his tongue is clean; pulse good, and appetite excellent.

13th.—Proceeding most favourably.

16th.—At eight P.M. this evening oozing of venous blood took place, which lasted only for a few minutes. He is rather feverish; skin hot and dry; pulse quick and hard; tongue white and dry, and thirst great. To take a tablespoonful every third hour of the following mixture:—Antimony wine, one ounce; liquid acetate of ammonia, two ounces, and camphor mixture, five ounces: mix.

17th.—Still feverish. Continue mixture, and to take one drachm of Gregory's powder immediately.

19th.—Complains of severe pain along the outer side of the stump, along which there is redness and hardness. A poultice to be applied to the stump.

20th.—A large slough has formed on the outer side of the stump, from which a considerable discharge of blood and purulent matter escaped; fever diminished.

22nd.—Sloughs fast disappearing and leaving healthy granulations in their place; discharge less in quantity, and more of a healthy character, and all feverishness has disappeared.

31st.—Granulations of stump still show a healthy action, and the ulcers are gradually diminishing in size.

November 7th.—Stump almost healed; the bone, by careful bandaging, has been again covered, and he is now daily gaining strength. To take two grains of quinine three times a day.

22nd.—Stump entirely healed.

December 3rd.—Discharged to Chichester.

CASE 14.—*Frost-bite*.—The following interesting case was specially noticed by Her Majesty the Queen:—

Corporal Henry Burland, aged twenty-eight, 34th Regiment, was seized with fever in September, 1854, before Sebastopol, and was taken to the camp hospital, where he remained a fortnight, and was then sent to Scutari. During the voyage from Balaklava to Scutari, the toes of both feet became frost-bitten, and sloughed extensively before his arrival. He remained in Scutari four months. Both his feet were amputated (by Syme's operation) on the 24th of January, 1855. After this he gained strength, but the stumps never healed.

He was admitted into this hospital on the 24th of May, when the stumps presented the following appearances:—Large unhealthy ulcers covered the face of both stumps; the ulcers were devoid of granulations, and their edges were angry and everted; his general health was much impaired.

May 29th.—Both stumps are looking better, and they are less painful. On examining the right stump carefully with a probe, the bones are felt, diseased, softened, and denuded of their periosteum; the left stump is in the same state.

June 3rd.—To-day there is increase of pain in the left stump, attended by some inflammatory symptoms. Last night a small piece of cancellated bone was removed from the right stump.

7th.—The patient was seized to-day with an attack of pneumonia; pain in the left side of the chest; accompanied by fever; quick and oppressed breathing; expectoration viscid and firm; crepitation can be heard by the stethoscope. Leeches applied to the chest, and antimony to be taken internally. Both stumps look angry.

10th.—Pain in the chest much relieved; breathing is more easy, and the expectoration is less.

15th.—Pain of the chest nearly gone; stumps looking much better.

20th.—Chest entirely free from pain; the inflammation around the stumps has subsided, and he feels little or no pain in either of them.

23rd.—The left stump is much swollen and inflamed to-day, and it is exceedingly irritable and painful; pulse quick but firm; appetite failing, and he sleeps badly.

30th.—Swelling subsiding, and the surface looks

less angry; the right stump has got quite into a chronic state; ulcer devoid of all granulations; edges white and thickened.

July 5th.—The left stump is exceedingly painful, and he has now got all the symptoms of irritative fever.

In this state he remained until the 31st of August, some days easier, at other times suffering most severely, when the leg (left) was amputated below the knee by second-class staff-surgeon Dr. Leitch.

September 5th.—The stump is rapidly healing; has had no bad symptom since the operation; surface of the stump of the right leg presents no change.

15th.—Erysipelas threatening the left stump; there is slight swelling and redness of the skin, accompanied with fever.

20th.—By the application of fomentations to the stump, and by the use of aperients and iron internally, the erysipelas has entirely gone. The stump looks well, and is nearly healed up, and his general health has greatly improved.

October 1st.—The left stump is entirely healed; no change in the right stump whatever.

November 7th.—Tried a boot, the imitation of a foot, the private gift of Her Majesty, on his right stump to-day, and was walking a great deal about on it. In the evening the stump was painful and swollen, and in some places he had torn the skin off the edges.

10th.—The stump is looking better; is less painful and swollen, and a few granulations can be seen over its surface; edges slightly irritable.

15th.—The stump is giving him great pain at night, and since the accident it has gradually got worse; the ulcer has increased in size, and is studded with small black spots; projecting pieces of dead bone; the granulations are large and flabby; general health pretty good.

21st.—Seeing no prospect of the stump healing, and at his own request, this leg was also removed below the knee by Dr. Leitch. At half-past four o'clock p.m., hæmorrhage set in, the stump had to be opened up, and two or three minute vessels were tied.*

22nd.—Slept well last night; no more bleeding.

25th.—The stump dressed to-day, and is looking well.

30th.—Stump nearly healed, and his general health has greatly improved.

December 10th.—Stump healed; with the exception of a small spot, about the size of the nail of the little finger, all the ligatures have come away, and his health is rapidly improving.

15th.—Stump entirely healed.

20th.—A small abscess having formed on the face of the right stump, it was opened, and is now

healing kindly. The patient is daily gaining strength.

25th.—Stump entirely healed.

January 5th, 1856.—Convalescent.

February 12th.—Discharged to Chatham.

The treatment applied to the stumps previous to amputation was of a soothing kind—warm water dressing and poultices; latterly astringent lotions were used. Internally, he took the steel wine and a good generous diet. After the amputations, the stumps were dressed in the usual way, and his general health was paid attention to.

CASE 15.—*Strychnia in Paralysis and Injuries of the Spine.*—The following case is worthy of attention, as showing the successful effects of strychnia, when administered with care and attention, in injuries of the spinal cord.

Sergeant William Aldridge, 46th Regt, aged thirty-nine, during a sortie from Sebastopol, was knocked down in the trenches, and his back formed a bridge, over which English and Russians passed. The result was serious injury to the spine, causing paralysis of the lower extremities and bladder. On the 4th of March, 1855, he was placed under my charge, in the Military Hospital, Portsmouth, when he complained of great pain and tenderness along the spine, and incontinence of urine, together with wandering day-dreams, and insomnia at night. One drachm of the solution of the muriate of morphia was prescribed and administered without effect. (One drachm contains one grain.) The dose was gradually increased to two drachms of the solution.

March 15th.—Fell out of bed during the night, trying to hide himself. Is wandering, and fancies that he has deserted from the Crimea and will be shot. The narcotic has been omitted for several days. Strychnia was now ordered in doses of one-sixteenth of a grain three times a day.

20th.—Continues much the same, with slight twitchings of the face.

25th.—Has been unconscious for three days; now complains of intense pain in the back, and violent cold perspirations. Omit the strychnia.

28th.—Is conscious again; feels easier, having slept for forty-eight hours. Expressed a desire to make his will, and to send to Dublin for his wife. Both wishes were complied with.

30th.—Sensation and motion are gone from the lower extremities, and the urine is still passed involuntarily. The strychnia was resumed, in doses of one-eighth of a grain twice a day.

31st.—Is powerfully under the influence of strychnia; the body is in a state of partial opothotonæ, with convulsive movements of the upper and lower extremities, requiring three orderlies to hold them down; wild stare and fixed jaws. The lower extremities had not moved for several months previously. This paroxysm continued for nearly one hour under my own observation, after which the muscles became relaxed, the face bedewed with a gentle perspiration, and soon resumed its ordinary tranquil appearance. Omit the strychnia.

April 2nd.—Feels greatly relieved from pain,

* Most of the amputations performed in this hospital on Crimean invalids necessitated the tying of an unusual number of small vessels. The time elapsed from the receipt of the injury until the operation, (sometimes two or three months,) and the irritation kept up during that period, increased the circulation of the parts, and minute vessels that in ordinary cases would pass unnoticed, became enlarged, bled freely, and required the ligature—often as many as seven or eight.—T. B.

and is comparatively comfortable; sleeps calmly. His appearance is entirely changed; looks natural, features calm, is cheerful, and reads the papers. Strychnia was omitted for some days after the last paroxysm, and replaced by the tincture of the sesqui-chloride of iron and quassia, and a generous diet.

6th.—Continues to improve: has now and then slight twitchings in the legs and arms. The strychnia was resumed and omitted, as the symptoms indicated, to the end of the month.

May 1st.—Is greatly improved; goes about the balcony in a chair; returning sensation in the right leg; bladder still not under the control of the will.

20th.—Sensation much improved in both legs, and motion increasing in the right leg.

25th.—Convulsive movements all over the body, resulting from the use of the strychnia. Lower extremities decidedly improved, both in motion and sensation.

June 1st.—Maintains his improved condition. Recommenced the strychnia to-day, without any marked effect at the moment.

10th.—Violent tetanic spasms followed the employment of the drug, producing considerable increase of motion in both extremities. The paroxysms usually continue about fifteen minutes, when the muscular system resumes its ordinary appearance.

20th.—Continues the same. Strychnia not resumed since last entry, as occasional twitchings occur about the head and face, and the patient is now affected by the smallest dose.

July 1st.—General health excellent.

10th.—Continues to improve daily in regaining the use of his limbs. Is now able to walk about on the ramparts with crutches, but is extremely sensitive to any change of weather, damp always causing pain in the spine. Continued to improve to the end of the month.

August 1st.—No change worthy of note.

14th.—Discharged to Chatham.

CASE 16.—*Paralysis*.—The following case is deserving attention, as showing the effects of strychnia in functional paralysis resulting from fever—a frequent occurrence in patients invalided from the Crimea.

Private Samuel Gilpin, aged thirty, was admitted into the Military Hospital at Portsea on Oct. 12th, 1855, suffering from paralysis. On his admission into this hospital he could neither move his hands nor his feet, and he lay in bed perfectly unable to turn himself from one side to the other, or even to feed himself. The orderlies were obliged to feed him as a nurse would a child. The first few days after his admission he had generous food and tonics.

On the 14th of October I prescribed one-sixteenth of a grain of strychnia twice a day.

Oct. 15th.—Motion is returning in the upper extremity; can raise his left hand to his head.

20th.—Continues to improve.

25th.—Discontinue the strychnia, on account of spasmodic convulsive movements of the limbs.

29th.—Resumed the strychnia. Patient able

to feed himself, to sit up in bed, and stand with crutches.

Nov. 5th.—Progressing favourably.

15th.—Walks about with a stick.

20th.—Convalescent.

26th.—Discharged to Chatham.

This patient had no other medicine, from the second day of treatment, but strychnia, and to the therapeutic effects of this powerful drug is to be attributed his speedy and complete recovery. Administered with care and caution, in appropriate cases, there is no remedy in the pharmacopœia of greater value than strychnia, and in the hands of a careful practitioner there is no danger to be apprehended from its use. I have used it freely in the Military Hospital, in cases similar to those narrated above, with marked benefit, when every other remedy had failed, and in no instance was there any untoward result.

Military Hospital, Portsmouth, 1854.

FURTHER NOTES ON APNŒA AND AS PHYXIA.

By MARSHALL HALL, M.D., F.R.S., &c.

BEFORE we can be perfectly prepared to investigate the nature of apnœa, its effects, and its remedies, we must study the special function which is interrupted.

Respiration involves four important processes:

First. Oxygen is absorbed by the blood circulating in the pulmonary blood-channels, only absorbed,—from the inspired atmospheric air.

Secondly. By this oxygen the carbonic acid is displaced and evolved from the blood, and removed from the system with the expired air.

Thirdly. Aqueous vapour in large quantity is evolved from the pulmonary blood, and exhaled with the same expired air.

Fourthly. The expired air has a higher temperature than the inspired air; caloric is therefore given off by the pulmonary blood, the temperature of which is *pro tanto* diminished;—respiration is therefore a *cooling process*.

The trachea is not only the way of ingress into the lungs, but the way of egress from the lungs; it is not only the ventilator by which the atmospheric air, and especially its oxygen, are admitted, but the chimney by which the air expired is, with its accession of carbonic acid, conveyed from the lungs,—that carbonic acid which would, if retained, be a real "*choke-damp*," as it is the blood-poison, and the real cause of death in apnœa.

The important function of respiration consists in this inhalation of oxygen and exhalation of carbonic acid. This function is unattended by any important change of temperature. Animal heat is evolved *not* in the lungs, *but* in the general system at large, where the change of oxygen into carbonic acid, the slow *combustion* of carbon, takes place, during the processes of deposition and absorption, in which nutrition consists.

That nutrition, and with it the evolution of heat, are events which occur in the systemic circulation,

are facts principally established in modern times ; but not entirely ; they were not unknown in the time of Harvey. I find the following remarkable passage in a "Discourse" appended to his English edition of Harvey's "Anatomical Exercises concerning the Heart and Blood," by Dr. James de Back, which appeared in the year 1653, p. 107 :—

"I do believe, that wherever nutrition is performed, there this function is most manifestly executed, and that the parts, whilst they are nourished, are heated ; there the composition of the blood is dissolved, and is divided very small ; there also the fire particles, freed from their fetters, and being united, do show their force by heating."

That the function of respiration is in reality a cooling process was the doctrine of Galen (*De Utilitate Respirationis*, ed. Ven. 1597, p. 223). It was also the doctrine of Haller ; and it is obviously true. We may inhale the atmospheric air at various temperatures, some of which are far below that of freezing water ; we exhale it at the temperature of 92° or 94° Fahr.—a temperature comparatively higher, even in summer, and still more considerably so in winter. This elevation of temperature is effected by a proportionate loss of temperature sustained by the blood circulating in the pulmonary blood-channels. *Respiration* is therefore a cooling process.

I propose, on the first opportunity, to introduce two thermometers, one along the jugular vein into the right auricle of the heart, in a breathing animal, the other along the carotid artery into the left,—under the influence of chloroform. The circulation of the blood is extremely rapid ; still I think that a delicate thermometer, constructed for this purpose expressly, will detect a difference, and that the temperature of the left side of the heart will not be higher, but lower, than that of the right.

We may thus recapitulate the matter : the oxygen inspired in the lungs is absorbed, and thence conveyed by the arterial blood into the general system, and that it *there supports* the combustion of the tissues, by which combustion the animal heat is evolved ; the carbonic acid, the choke-damp, the blood-poison, formed by this combustion, is re-conveyed by the venous blood to the lungs, and thence exhaled into the atmosphere.

If the mere absorption of oxygen be attended by the evolution of a slight degree of heat, this is probably counterbalanced by the simultaneous escape of carbonic acid, the one losing, the other assuming, the form of gas ; so that the resultant temperature may be unchanged.

But the evolution of aqueous vapour must also be a cooling process in proportion to the quantity of water passing from the fluid state to that of vapour.

The cooling effect of the inhalation of a cooler and exhalation of a warmer portion constitutes then an obvious cooling process.

And here I may revert to that marvellous law of the animal economy, according to which the number and extent of the respirations and the rapidity of the circulation constantly maintain a due *ratio*

to each other. During repose, and especially during sleep, these are both at a *minimum* ; during activity and effort of every kind they are augmented. In both cases the physiological ratio or proportion between them is sustained.

A singular exception to this rule is observed in the dog, which pants and projects his tongue, as the effect of heat merely, I believe, without proportionally augmented circulation ; the augmented respiration is merely a cooling process.

If the due ratio between the circulation and the respiration were broken, one of two events must occur : if the circulation be unduly and disproportionately augmented, or the respiration be unduly suppressed, the quantity of carbonic acid being unexhaled and therefore retained, the blood becomes poisoned and the patient destroyed ; if the respiration were unduly augmented, the temperature of the animal would be lowered and the patient might die of *refrigeration*. The former fact obtains in every case of apnœa ; it constitutes the death by drowning, strangulation, "choke-damp." The latter fact was actually produced in the splendid experiments of Legalliois, in which he used artificial respiration. Undue artificial respiration cools and destroys ; the *balance* of temperature is lost.

In treating the cases of apnœa and approaching asphyxia, these principles must be our guide : if we induce too full and too frequent respiration even, the patient will lose his temperature and be destroyed.

I have already said and proved that a disproportionate circulation is fatal,—that the tendency of the warm bath without respiration is deleterious.

If our attempts at artificial respiration be made inconsiderately,—if the induced respiration be too rapid or too great, compared with the remaining degree of the circulation,—we destroy our patient.

The warm bath, or any other measure by which the circulation may be sustained, *respiration being deficient*, is, I repeat, actually destructive. It cannot be repeated too often, that an animal dies of apnœa the more promptly, the warmer the temperature, the more active the circulation in a word, from whatever cause.

Our object in treating the drowned patient must be twofold : to restore the respiration, but to restore it in a degree proportionate to the degree of the circulation ; and to promote the circulation, in its turn, by any means in our power, again augmenting the respiratory movements as we may succeed in this second object.

These are precisely the two objects which I mentioned in my former communication. It is since that publication that I have ascertained the importance of sustaining a just and due *proportion* between the two functions, the circulation and the respiration, which it must be our constant aim to promote simultaneously and proportionately, either of these, without the other, being actually fatal. Physiology must be our guide. Empiricism has proved fruitless—nay, worse than fruitless ; it has not even taught us, that to raise the temperature, without inducing effectual and proportionate respiration, is, as I have stated, destructive.

With the postural respiration formerly described must be combined the system of energetic frictions of the limbs upwards, with firm pressure, by means of which not only is the venous circulation *best* promoted, but the warmth itself is *best* restored.

These things, too, are accomplished by the bystanders, on the spot, without loss of time, therefore, and without apparatus of any kind.

Pocket-handkerchiefs should be used as towels, whilst each looker-on may supply some garment—the waistcoat, for instance—to lay under and over the patient, the face, neck, and thorax being, however, if the weather be not inclement, freely exposed to the breeze.

Nothing can be more admirable than the efficiency of postural respiration. Requiring no apparatus, it has solved the difficulty which formerly hung over our efforts to save the half-drowned patient.

P. S. I beg to add, in a postscript, the sketch of an experiment recently performed, of which I propose to give more ample details in a future paper, which I am preparing on this interesting and important subject.

I placed one mouse in five ounces of atmospheric air; it died in *forty* minutes.

I placed a second mouse in the same quantity of atmospheric air, into which pure ammoniacal gas was diffused: it survived *ninety* minutes!

The difference between these two experiments is that of carbonic acid blood-poison, retained unchanged, and exhaled or neutralized.

July, 1864.

THE TRUE SPINAL MARROW THE TRUE SYMPATHETIC.

OBSERVATIONS AND SUGGESTIONS.

By MARSHALL HALL, M.D., F.R.S., &c.

I REMEMBER the day when muriatic acid was regarded as a simple body, and chlorine as oxygenated muriatic acid. Davy demonstrated that chlorine, on the contrary, is the simple substance, and the muriatic acid the hydrochloric; an opinion opposed for a brief space of time.

In like manner the spinal marrow has been viewed, to use the words of Unzer, as a mere "*thick cord of nerves*," and the ganglionic system as the great sympathetic; whereas the true spinal marrow is, in reality, the true great sympathetic, or rather the great dienergetic nerve of the general system, whilst the ganglionic intra and extra-ganglionic system are its branches.

Since the promulgation of the diastaltic nervous system, of which the true and real centre is the spinal marrow and the spinal marrow only, two mistakes have been committed; the first, was to ascribe a similar function to the cerebrum; the second, to ascribe a reflex power to the ganglia. The former error arose from confounding the effect of *emotion* with those of the excitants of diastaltic action; the latter was, I believe, a mistake without foundation of any kind.

If we see a disgusting object, we experience an

emotion which may issue in sickness and vomiting, as other emotions issue in sickness and vomiting. But who does not instantly perceive the difference between this psychological fact and the vomiting induced by the physical excitement of the fauces, for example?

Of an instance of a reflex action through the medium of the ganglionic system, the spinal centre being intercepted, not a trace has been discovered.

Is there, in effect, any fact of a physical direct or reflex action, excited from or through the substance of the cerebrum, freed from its membranes; or of any part of the ganglionic system, the spinal centre being removed? I believe not. To speak then of reflex actions of the cerebral or of the ganglionic systems, is to confound things essentially distinct, and unwarrantably to extend the use of terms recently introduced and well defined.

The great experimental question is this: When the cerebral and the spinal centres are removed, is there any possibility of inducing any phenomena such as those which have for ages been denominated *sympathetic*? This question has never been proved or discussed fully and distinctly. It might be resolved in the following manner:—

The spinal marrow may be partially and even entirely divided into reptiles, the low-feeding and low-breathing fishes, and very young animals. This being accomplished, every means of inducing effects on the remaining functions is to be tried. If such effects be produced, it must be through the ganglionic nerve; if such effects be impossible, it must be because the real centre of reflex action is absent.

I have destroyed the whole cerebrum and spinal marrow in frogs, carefully avoiding intra-spinal hæmorrhage; but I could not afterwards influence the action of the heart, or the phenomena of the circulation, by any means I could devise.

Still I regard the whole experimental question as requiring to be subjected to new investigation.

I formerly regarded the diastaltic action as limited to obvious movements; but a multitude of facts show that it has a vastly more extended application.

We all know the intimate relation between the ovarium, the uterus, and the mammæ. If the new-born infant be put to the nipple, contraction of the uterus is excited. No one doubts that this is a reflex or diastaltic spinal action.

Pregnancy induces enlargement of the mammæ, and excites the secretion of milk. Is this secretory action less *spinal* than the former one?

The same derangement of the stomach induces convulsion, cramp, asthma, irregularity of the heart's action, altered secretion of the kidneys. Are they not all and equally diastaltic spinal actions?

The same pregnancy which affects the mammæ induces nausea and vomiting. The last phenomenon is indubitably diastaltic spinal. Are the others less so?

Coldness impressed on the skin induces contraction of the rectum and of the bladder, augments the action of the kidneys, stays hæmorrhage, and induces various internal inflammations. I know a

patient in whom damp feet would induce sneezing instantly, with increased secretion of mucus.

The whole cutaneous surface is simultaneously contracted or relaxed by the local and partial application of cold or hot water. I know one patient, a near relative, in whom exposure to damp infallibly produced renal hæmorrhage. A similar cause is apt to produce diarrhœa.

Many other facts of the same kind might be adduced.

That secretion is influenced by diastaltic action through the spinal centre is now placed beyond all doubt by the remarkable experiment of M. Bernard, in which the glycogenic function of the liver is proved to be a diastaltic spinal action. I quote M. Bernard's words—

"Le nerf (pneumogastrique) porte au centre cérébro-spinal les sensations (?) internes émanées de sa périphérie; l'excitation qu'il transmet est, dans ce cas, *centripète*, et non pas *centrifuge*. Et, en effet, après avoir coupé le pneumogastrique, si, au lieu d'agir sur le bout périphérique, ce qui n'a aucun effet sur la sécrétion du sucre, on excite avec le galvanisme l'extrémité qui se rend à la moëlle, la fonction glycogénique non seulement n'est pas interrompue dans le foie, mais elle peut même être exagérée lorsque l'excitation a été poussée assez loin."

As it is my present object only to suggest the idea, and to add a suggestion and an observation or two, I conclude this brief communication with one final remark. It is not only obvious that the true spinal marrow is in reality the true sympathetic, but that the diastaltic system has an extension over the animal economy scarcely yet contemplated by the physiologist and the physician. It is in reality, in this latter respect, only second to the circulation of the blood itself. As the blood really describes a *circle*, the diastaltic spinal system describes a *cycloid*; as the blood diffuses its atoms into every minute space of the system, the diastaltic spinal system extends its influence over every one of those atoms! The blood undergoes its changes in the methæmatous, or blood-changing (or capillary) channels placed between the ultimate branches of the arteries and the incipient roots of the veins; to these same points the diastaltic spinal system extends its wondrous influence.

July, 1884.

ON NEGLECTED PURULENT OTORRHOEA AND ITS RESULTS.

By THOMAS WESTROPP, Esq., M.R.C.S., Bristol.

As long as obstinate popular prejudice and stubborn medical indifference, if not ignorance, coexist on the subject of diseases of the ear generally, so long will it be the duty of those who are conversant with the subject to protest frequently against errors so fatal in their tendencies, till at length the danger of neglected purulent discharges from the ear shall have become as familiar as "household words."

This is no new fact: every writer of repute on aural surgery has insisted on it; every modern well-written book on general surgery directs attention to it. Fatal cases are occasionally detailed in the medical journals, lectures of eminent men are published, all tending to establish the certain fact, and advocating the necessity of immediate scientific and patient attention being paid to ear affections, and especially to otorrhœa. Yet, after all this, although one would think a tyro in his profession ought to thoroughly understand it, an amount of carelessness, ignorance, prejudice, and utter neglect, is daily to be observed, both amongst patients, as well as amongst their medical advisers, with very few exceptions. I can scarcely account for it: all I know is, that it is a palpable fact—a fact which, I am sure, every aural surgeon in the kingdom will corroborate from his own experience. One reason may be, that it requires more than ordinary trouble, dexterity, and patience to properly investigate the details of an ear case; suitable apparatus and instruments are required which are not in general use. It sometimes takes from half an hour to an hour to give the requisite attention to a patient, on his first visit, who is suffering from chronic purulent otorrhœa: it is rather an offensive proceeding to the medical man, and one which, unless he is well paid for it, he is little likely to repeat over and over again. And even should the surgeon prove competent and patient enough for the task, there is the prejudice, and often stupidity of the sufferer (who cannot be made hear without a great deal of extra trouble), to contend against.

It is not my intention to dwell on the treatment, (with the exception of stating that I have found lotions of either chloride of zinc or tannin most useful,) for this has been well laid down by Mr. Wilde, of Dublin, and very many others; but I wish to direct the attention of medical men to the subject, and let long experience, together with appropriate study, teach them. Through them I desire to battle with the false notions of the people; to do which, I think, it will take many years.

I will here introduce a few facts from my own experience in these matters. Firstly. People, even when they consult me about their ears, frequently remark that it is very dangerous to *tamper* with such delicate organs; that they were afraid to do so when the complaint began; are still afraid; that friends of theirs had been severely injured by allowing their ears to be interfered with. (This I do not altogether doubt, as delicate manipulation of the ear with surgical instruments is not much cultivated.) That different medical practitioners had advised to this effect—viz. to let well enough alone; that it would not signify; to put a bit of wool in to keep out the cold, (or rather, to keep in the discharge;) that it was best to leave it to Nature; and many other such recommendations. In some instances, a syringe has been used at random, lest there might be some wax in the ears. I have known the membrana tympani to be ruptured in more than one instance during this simple opera-

tion. A blister is occasionally applied at a venture, which sometimes increases the irritation of the organ in no slight degree, as in a case I have at present, where acute inflammation and tumefaction was seated in the region of the parotid gland, and extended to the ear. Secondly. It takes sometimes a few weeks' regular attendance to manage an acute case, so as to prevent bad results; it generally requires several months' steady, judicious treatment to benefit a chronic case, even when it can be benefited at all. Here it may be repeated, that disease of the ears is just as remediable as disease of any other organ, if taken in time, and treated on the same rational principles, and with as much perseverance. Thirdly. That I do not magnify the danger to life from subsequent and consequent cerebral disease, when a discharge is allowed to go on unchecked for years. I appeal to the lectures and cases published by Mr. Toynbee within the last two years, which medical men have ignorantly asserted to be over-rated and over-stated. I would also refer to statements and remarks of Mr. Yearsley. These two gentlemen have lately been publishing, in the London medical journals, directions for the proper examination and registration of ear cases, which the general practitioner might study with great advantage. I also refer to the article on, and cases of, otorrhoea, in Mr. Wilde's work on "Aural Surgery," which points out the danger to the organ, as well as to life itself, and the reasons thereof, as clearly as can be done.

A few cases, from my own notes, may not be amiss. Some years ago, I was asked to see a man whose friends said he had been suddenly taken ill with a pain in his head. I found him in bed insensible, his eyes exhibiting the bright glistening of phrenitis. On inquiry, I was informed he had long been suffering from an ear complaint—neglected, of course. He died next day. No examination of the body.

Another case: an elderly man consulted me, at an ear dispensary in Bristol, some time since; long-continued and profuse discharge of both ears; odour very foetid. I did everything that circumstances admitted of—made a deep incision over the mastoid process, but it was too late; ere long, death stopped our proceedings.

Again: it is no uncommon thing to be told by mothers, in the lower walks of life, that children who had had runnings from the ears, suddenly got *fits*, which carried them off in a day or so. Yet, after all this, it was but the other day that an intelligent mercantile man, who has had a long-continued purulent discharge from both ears, and a large hole in one membrana tympani, told me he has been frequently advised by several surgeons, one of them a distinguished provincial in high practice, to let it alone—that it would be dangerous to stop it!

Clifton, July, 1856.

ON PREGNANCY COMPLICATED WITH TUMOUR IN THE PELVIS.

By THOMAS R. MITCHELL, M.D., F.R.C.S.I.

SOME of the most puzzling cases in practice, requiring all the tact and experience of the practitioner, arise from tumours in the abdomen; and as I think the particulars of the following case are both interesting and instructive, I shall, without further preface, proceed to detail them.

In February, 1855, I was consulted by Mrs. B—, aged forty-three, the mother of three children; she had also aborted once, and, I was informed, was suffering from a tumour in the abdomen of more than twelve months' duration. She had seen several practitioners, and undergone a variety of treatment, prior to my seeing her. I ascertained that she had not menstruated for four months, and complained of great pain in the abdomen, the pressure of her clothes being most distressing, accompanied with bearing-down sensation, loss of appetite, and constant nausea and vomiting; the bowels were very constipated; tongue foul; pulse 95, small and weak. She told me that five years ago she had a very bad labour, that instruments were used, and that from that period she had always menstruated regularly until within the last four months, having lived quite separate from her husband all that time, being informed that another pregnancy would be likely to prove fatal. On examining the abdomen, which was very large, tympanitic, and tender, I succeeded, after a good deal of manipulation, in detecting a tumour of considerable size in the right hypogastrium. The examination was, however, most unsatisfactory, in consequence of the distress occasioned and the tympanitic condition of the belly. A vaginal examination did not assist the least in the diagnosis, the parts being normal, and *in situ*, with the exception of a slight anteversion of the uterus. Examination per rectum elicited the presence of a considerable fulness pressing upon the posterior walls of the rectum, and obscurely fluctuating. A stethoscopic examination elicited nothing. The breasts were very soft and flaccid, no areola perceptible around the nipples, nor any of the glandulæ in the neighbourhood enlarged.

Not feeling satisfied as to the nature of the case, I ordered a brisk cathartic of turpentine and castor oil, which dispelled a quantity of flatus, and allowed a much better examination on the following day. The tumour seemed to be attached to the posterior part of the uterus, but so indefinite as to render any opinion as to its nature of little use. I accordingly directed my attention to allay the more troublesome symptoms, particularly the nausea and vomiting. Prussic acid was given internally, and the bowels regulated by the administration of enemata daily, together with light, nutritious food in small quantities. She seemed first to improve a little under the treatment, but the sickness was most distressing, and the prostration so great as to prevent her leaving her bed. Having an idea that the tumour might

be owing to a collection of fæces in the colon, a circumstance which had previously occurred to myself in practice, I introduced an O'Bierne's tube. The instrument passed up, without any difficulty, its whole length, but, with the exception of a slight escape of flatus, no good resulted, except of a negative character.

Ten days later, I met another practitioner in consultation, and the various examinations, abdominal, vaginal, rectal, and stethoscopic, were repeated, but without assisting the diagnosis in the least. It was evident that so much constitutional disturbance must have a cause, and it was determined to watch the case, and meet symptoms as they arose. All idea of pregnancy was stoutly and indignantly denied.

Towards the latter end of March, the lady complained of pain in the right breast, which led to an examination. I found it fuller, and with a slight moisture around the nipple; the skin was also darker. On making a careful stethoscopic examination, I detected a faint bruit, and informed my patient's sister of my suspicion. Early in April, I heard the foetal heart distinctly, which set the matter at rest, although the lady assured me she was unconscious of the fact.

Everything was allowed to remain as a matter of course; and although confined almost entirely to bed, as the enormous size of the abdomen precluded motion, and produced great sickness, still by attention to diet, and regulation of the bowels, she suffered less than might have been expected. Labour came on the 18th of July; the first stage was very tedious and distressing, the prostration being great. After twenty-four hours' labour, I felt what at first seemed to be the membrane protruding, but which, on a careful examination, I found to be the whole posterior wall of the vagina, which was pushed down, and as large as a child's head. At this time the os uteri was dilated to the size of half-a-crown, the head presenting, and the membranes unruptured. The pains were now so distressing, and her shrieks so violent, that I put her under the influence of chloroform, its administration being kept up during the whole of the after part of the labour. At this stage, a consultation on the case was held with another practitioner, when, as there appeared sufficient room for the exit of the child, and as no urgent symptom was present, it was determined to leave Nature to herself. The catheter was used, and an enema given. At six o'clock P.M., after thirty-two hours' labour, the os uteri was fully dilated, pains brisk and frequent, head above the brim of pelvis; I ruptured the membranes, the pains became frequent, but there was no advance of the head. The long-continued pain was now beginning to tell upon her, the pulse rose to 110, stomach very irritable, and considerable tenderness over the abdomen. The uterine action was brisk, frequent, and powerful; but it was evident that Nature could not effect the delivery, the obstruction being too great, the posterior part of the pelvis being completely filled with a firm solid body, apparently passing behind the rectum, and

protruding that viscus before it, so as to occupy nearly the entire of the pelvic cavity. Having, therefore, waited as long as I thought safe, I determined to deliver her, and tried first with the long forceps. I could not, however, succeed in locking them, and therefore did not deem it prudent to persevere, but perforated the child's head; and, after some delay, and no slight pulling, delivered her. The placenta was extracted from the vagina in half an hour after the delivery. The uterus contracted pretty well; but as the pulse continued above 100, I remained some time with her for fear of flooding, which was not, however, violent, and quickly succumbed to a dose of ergot, and the compress and bandage.

Her recovery was very slow and tedious. On the third day symptoms of peritonitis showed themselves, but having given her small doses of calomel and opium immediately after the delivery, they soon subsided; she was not, however, able to leave her bed for two months, and could not walk across the room even then. By degrees, however, she gained strength, and is now able to walk two or three miles. The prolapse of the rectum was most distressing for some time, but as the uterus ascended into the pelvis it disappeared, clearly proving that the tumour was attached to the uterus. Numerous careful examinations after the delivery failed in discovering the exact nature or condition of the tumour, being evidently at the back part of the uterus and close to the spine. The lady, at the commencement of the present year, enjoyed pretty good health, and suffered no inconvenience except at each menstrual period, when she experienced a good deal of pain.

There are, I think, in this case several points of great practical importance, fully showing how careful we ought to be in forming our diagnosis, and how necessary that we should not be induced to place implicit reliance on the statements of patients or their friends. It is, indeed, a great wonder that the uterus did not expel its contents when we consider the vast amount of provocation it received, and the powerful means that were employed. I have no doubt that the tumour had existed for years, and that it was the cause of difficulty in her former labour, and induced her medical attendant to warn her against any future pregnancy.

Liverpool, 1866.

ON SOME CASES OF HERNIA TREATED AT ST. THOMAS'S HOSPITAL, WITH REMARKS.

By WALTER TYRRELL, Esq., M.R.C.S.,

LATE HOUSE-SURGEON TO THE HOSPITAL; SURGEON TO THE NATIONAL TRUSS SOCIETY, &c. &c.

I PROPOSE to lay before the profession a series of cases of hernia, which came under my notice during my term of office at St. Thomas's Hospital. Some are interesting, as presenting peculiarities in their nature; others as illustrating varieties of treatment; and all, I am sure, if merely regarded as plain statements of facts, will not be deemed unworthy of record. They will be classed accord-

ing to dates, and, when finished, a summary of the nature, treatment, and result, will be given. One point especially worthy of note in these cases is the extremely successful result of the application of ice to strangulated herniæ; as the cases will show, it has frequently been the means of procuring reduction of tumour after other means had failed.

The first case is that of R. B—, aged thirty-nine, a papermaker, who was admitted into Henry's ward, under the care of Mr. F. Le Gros Clark, Oct. 10th, 1854, suffering from strangulated scrotal hernia of fifty-eight hours' duration. The patient is an unhealthy-looking man, of phlegmatic temperament. He states that he has had a double scrotal hernia for fifteen years; he has worn a truss constantly during the day, but has had each rupture down once or twice, but never so as to cause him much inconvenience. On October 8th, about ten A.M., soon after he had gone to bed, and while asleep (for he works during the night), his right rupture descended; it caused him considerable pain, and woke him. He found it larger than usual, and not to be returned in the ordinary manner. A sensation of sickness also came on, but he did not vomit until later in the same day. He could not rest, as the pain and sickness continued, and at night he found himself quite unable to go to work. His symptoms continued unabated all night, with the addition of violent abdominal pains of a dragging nature. Towards evening he called in a medical man, who advised his immediate removal to the hospital. This, however, could not be done until the next morning. His bowels had not been opened for sixty hours. The patient reached the hospital at about eight A.M. on the third morning after the descent of the hernia. On admission, the tumour was tense and very tender; he had also much pain over the umbilicus. Mr. Clark had him removed to bed, and pounded ice applied in a bladder to the tumour; an enema, containing castor oil, was also given him. At three P.M. Mr. Clark again saw him, in company with Mr. South, and, finding that the ice had produced no effect, it was determined to operate at once. Mr. Clark performed the operation by making a small incision over the neck of the tumour, as he expected to find the constriction at the external ring. In this diagnosis he was correct. The sac was opened, and contained a large quantity of intestine, very much congested, but not presenting any signs of gangrene. After the operation the patient progressed favourably, with the exception of being troubled with obstinate tympanitis, which lasted some days, and resisted all means of relief. His bowels were not freely opened until three days after the operation; but from that time this painful symptom declined. About a week after the operation he was quite free from pain, his tongue clean, and the wound healing rapidly.

October 21st.—Wound nearly healed; bowels open regularly; sleeps well; appetite good. A week after this, he was measured for a truss; and on November 7th, twenty-eight days after the operation, he was discharged cured.

With this case, I would compare one which was admitted on the following day, and in many respects presents a striking resemblance to the one just described. It is that of James B—, a fine, healthy-looking young man, aged twenty-one, who gives the following account of his disease:—He has always had some small amount of swelling in the right side of his scrotum, and this was at times increased by a protrusion which ran up into his groin. This, however, always returned without causing him any inconvenience. He had no suspicion of rupture, and had never worn a truss. His occupation was laborious—that of a railway porter. Two nights before, he had gone to bed about ten o'clock, and had been there about an hour, when he was awoken by severe pain in his belly. On examination, he found the swelling in his scrotum much increased in size, and very painful to the touch. The pain continued through the night; he could not rest; and in the morning he sent for a medical man, giving as his symptoms pain in the belly, sickness, &c. Not mentioning the tumour, two pills and a purgative draught were ordered, and, as might be expected, only with the effect of increasing the sickness. He had no motion. In the evening, the medical man again called, and his attention was now drawn to the tumour. He made an attempt to return it, but without effect, and advised his removal to the hospital. The patient continued in agony all night, with increased sickness, and violent dragging pain at the umbilicus. He reached the hospital on the morning of the 11th of October, and was admitted into Henry's ward, under the care of Mr. F. Le Gros Clark. Immediately on his admission, pounded ice in a bladder was placed on the tumour, and kept on for about half an hour. On its removal, taxis was again applied, but with no better success, as the extreme tenderness of the tumour prevented any continued attempts. Soon after this, Mr. Clark saw him, and proposed immediate operation. It was accordingly performed. On opening the sac, a large quantity of fluid escaped, differing from that usually found in hernial sacs, being thicker, and more viscid. On further opening the sac, the testicle was found lying at the lower part, thus confirming an opinion that Mr. Clark had expressed previous to the operation—that the hernia was of the congenital form, and accompanied with hydrocele. A knuckle of intestine, about the size of a pigeon's egg, and of a deep port-wine colour, was then returned, and the patient replaced in bed. From that time he had not one bad symptom, his bowels were freely opened the same night, and by November 7th he was discharged cured.

These cases present many points of similarity. In both, the symptoms at the time of operation were urgent; and in both, the intestine, when exposed, was found to be deeply congested; and both, more particularly the latter, may be looked upon as good instances of what has been termed "inflammatory strangulation." But the most remarkable point is, that in both cases the protrusion and strangulation took place while the patient

was in the horizontal position asleep, and, as far as they could say, not making any unusual effort. This would certainly show the necessity of constantly wearing the truss, not merely with the view to obtaining a permanent cure if possible, but even for purposes of safety.

St. Helen's-place, 1856.

ON THE ACTION OF STRYCHNIA ON THE HEART, AND THE MODE OF DEATH IN POISONING BY STRYCHNIA.

By JOHN BAYLDON, Esq., Edinburgh.

I.—*The Action of Strychnia on the Heart.*

STRYCHNIA has generally been supposed to cause death by asphyxia, by arresting the respiration, and has been classed as a very pure example of agents causing this mode of death. Magendie took this view, and the statement is continued in all the text-books referring to the subject.

In a paper read to the Royal Medical Society in March last, I endeavoured to show, as the result of experiments on animals (principally cats), that this view was not entirely correct; that, in addition to its action on the spinal cord, strychnia also had a decided action on the heart, causing loss of irritability in that organ. I am not aware that the action of strychnia on the heart had been observed by any writers previously.

In some cases of poisoning by strychnia, on opening the thorax immediately after death, the heart is found distended and motionless, not contracting or only quivering on mechanical irritation, and with blood in all the cavities. Strychnia having thus, in some cases, an effect on the heart, it is necessary to ascertain whether its action be direct or indirect. Mr. Blake (*Edinburgh Medical and Surgical Journal*, ii. 338) found that on injecting a grain of acetate of strychnia into the veins of a dog, death took place in about a minute and a half—the heart continued beating after death—and the arterial pressure, as indicated by the hæmadynamometer, was the same as in death by simple asphyxia. Here the strychnia was immediately applied to the heart, yet did not affect it. From this, and the want of constancy in the action, it would seem that it was not direct, but occasional and indirect. But probably it is direct for several reasons. The loss of irritability cannot be accounted for by supposing that it was caused by long-continued and slowly formed asphyxia, as that condition does not always exist. And in other cases, where the heart is contracting after death, it may cease to do so sooner than usual. Strychnia, also, as mentioned by Dr. Harley in a former number of *THE LANCET*, when applied locally to the muscles, or to the heart of a frog (and, I may add, to the heart of a warm-blooded animal), causes loss of irritability. Mr. Blake's experiment may be explained by the supposition that death took place too soon for the action of the poison on the heart to be manifested. So that, on the whole, the action on the heart is probably direct.

The conditions under which this motionless state of the heart after death occurs do not seem to be well defined. I have sometimes observed it when a moderately large dose in the solid form has been given by the mouth, and the animal has died after several fits of convulsions. Dr. Harley recently observed it when the poison was injected into the pleura. But it is far from being uniform, as in some cases, particularly where the animals have died suddenly, the irritability of the heart may continue for a long time after death. Thus, in one animal the right auricle continued to contract for forty-seven minutes after death, when the animal was rigid; in another case the contractions continued longer. The irritability of the heart is not destroyed by very large doses given by the mouth. The conditions for producing the effect, the dose, the mode of administration, and the channel of administration, require further investigation.

In these cases, it would seem at first sight that death had taken place by failure of the heart's power—by syncope. But I have never distinctly observed the heart's action to cease before the respiration, so that it cannot be absolutely said that death had taken place by syncope. It may have been by a combination of asphyxia and syncope, the respiration being arrested and the power of the heart failing about the same time.

It does not appear that any continuous spasm of the heart analogous to the spasms of the voluntary muscles occurs in poisoning by strychnia, in animals. The phenomena observed during life do not lead to that conclusion; and when the heart is examined immediately after death, I have uniformly found it distended and soft, containing blood in all the cavities. And if an animal be put under the influence of chloroform, a strong solution of strychnia injected into the peritoneum, and the chest opened when the convulsions have commenced, it will be observed that the diaphragm and other muscles contract spasmodically, but the heart does not appear to be affected with spasm. The remark on the condition of the heart refers only to its state when examined immediately after death, as changes may take place subsequently; thus the left ventricle may be firmly contracted half an hour after death. These changes may affect the condition of the heart when examined some time after death; but I do not enter into that subject.

With regard to the antidotes in poisoning by strychnia, I may observe that in those cases where the irritability of the heart is destroyed, it is probable that antidotes that merely arrested the spasms of the respiratory muscles might not prevent death, as they could not stop the action of the poison on the heart. In some cases where chloroform was given after strychnia, the heart was motionless after death; but reliance must not be placed on this, as I have observed that chloroform alone sometimes causes paralysis of the heart in animals. When a small dose of strychnia was given and chloroform administered, it appeared to lessen the spasms, and, in some cases, to prolong

life for a time. When a large dose of strychnia has been given, the convulsions cannot be controlled by chloroform. The effects of morphia, as an antidote, were experimented on by MM. Pelletier and Caventou ("Annales de Chem. et de Phys.," x. 174). I have also used it, and it did not prevent death. Conia is the agent most opposite in its action to strychnia; it was given, as an antidote, to animals by Dr. Pereira ("Materia Medica,"—Arta. Conia and Nux Vomica—*Antidotes*) without success. I have seen it tried with a similar result.

In all the animals poisoned by strychnia, the voluntary muscles were insensible, or nearly so, to mechanical stimulus after death. The intestines were contractile even when the poison had been injected into the perinæum; where the condition of the œsophagus was noticed, it was contractile. There was always an interval after death in which the animal was flaccid.

II.—The Mode of Death in Poisoning by Strychnia.

The mode in which strychnia occasions death in animals is not uniform, and appears to vary according to circumstances, such as the quantity of the dose and the manner of administration.

1. In some cases, where a very large dose is given, and in a state to act quickly and powerfully, as in solution, the animal may die in a minute and a half, and after death the heart continue contracting. Here the death cannot be by syncope, as the heart is pulsating; nor by asphyxia, as the period of time is too short for that mode of death. In these cases the mode of death appears to be by a powerful impression on the nervous system. So early as 1822, M. Segalas (Magendie, *Journal de Physiologie*, ii. 361) concluded that this was the mode of death by large doses of nux vomica. He found, for example, that artificial respiration failed to maintain life when nux vomica was administered in a large dose. He does not mention the state of the heart in his experiments.

2. In most cases the heart can be felt beating after cessation of the respiration, and death; and on opening the thorax it is found pulsating. Here death has evidently been by asphyxia: not necessarily asphyxia caused by the rigidity of the muscles of respiration during the convulsions, for probably asphyxia may be caused by the loss of irritability in the muscles of respiration, and may occur when the animal is in the relaxed condition, in the interval between the paroxysms.

3. In some cases (those formerly mentioned) the heart is found motionless after death, and, as before said, the mode of death here may be syncope conjointly with asphyxia. Syncope, however, may possibly be the principal cause of death in some cases.

Where the convulsions have been severe and long-continued, death has been supposed to take place by exhaustion. It may, perhaps, be so; still, however, the exhaustion will cause death in one of the above modes.

The results arrived at are as follows:

1. That strychnia has an action on the heart, lessening its irritability, and that this action is probably direct.

2. That the mode of death by strychnia is not uniform; it may take place by a general impression on the nervous system—by asphyxia, and possibly by syncope, or syncope conjoined with asphyxia.

The conclusions drawn require to be confirmed, the conditions under which the various phenomena are manifested to be exactly ascertained, and a general theory of the mode of action of strychnia to be established, explaining the whole.

JUNE, 1854.

Medical Societies.

MEDICAL SOCIETY OF LONDON.

DR. CHOWNE, PRESIDENT,

MR. WEEDON COOKE related the following obstinate case of

PERINEAL FISTULA,

treated unsuccessfully by several perineal sections, but subsequently cured by the persistent use of catheters and the administration of iron:—W. J—, aged thirty-three, a pale, spare, exsanguineous man, states that he was in the army (28th Foot) until four years ago, when he was discharged on account of a stricture and perineal fistula, the result of an abscess, for which he had been treated by the regimental surgeon, Dr. Young, for six months, and subsequently in the hospital at Fort Pitt, under Dr. Dartnell, for six months, who divided the urethra, used nitric acid, &c., but without effecting union. When he left the army he went to one of the London hospitals, and was placed under the care of an eminent surgeon, who used catheters and stimulating applications to the fistulous opening for three months without avail. The surgeon then cut down into the urethra, applied lint dipped in oil for three weeks, which resulted in no benefit, the urine continuing to pass through the fistulous opening. He was then discharged, and three weeks after, during a violent coughing, the perinæum gave way, and he bled very profusely. He returned to the hospital, when a catheter was introduced, and compresses applied to the wound. The catheter was kept in four or five days, but when the compresses were removed the urine still passed from the perinæum. He remained in the hospital three weeks, and had only been out two weeks, when without any violent exertion, the hæmorrhage returned severely, and he went again into the hospital, being the third admission. The catheter was introduced and kept in two days, and the compresses applied, which soon stopped the bleeding. He continued in hospital a month, having the catheter used twice a week during that time. After this he remained at home, very weak and unable to do anything for his living, for a twelvemonth, during which time

the urine passed from the perinæum very freely, almost in a stream. At the end of this time, having gained some strength, he was enabled to do light work, still troubled with his infirmity, until April, 1855, when he placed himself under his (Mr. Cooke's) care. He found, upon examination, two openings from the perinæum into the urethra, having indurated, averted edges, from which, the patient said, more urine passed than through the penis. He was weak, pallid, and much distressed at his condition. He (Mr. Cooke) passed a No. 6 catheter, and found a stricture about three inches from the entrance, and another in the membranous portion of the urethra. He ordered fifteen minims of muriated tincture of iron three times a day, and continued every other day to pass catheters, until, in about eight weeks, he could pass No. 12; and by this time the patient's health was greatly improved. The passage of urine from the fistula was trifling, being only a moisture of the parts. In six months, by passing a No. 12 catheter once a fortnight, one of the openings closed entirely; and now, one year after coming to Mr. Cooke, by an occasional passing of the catheter and an occasional use of the tincture of iron, with good diet, the other fistulous opening has also healed. No urine passes now by the perinæum; No. 12 catheter passes freely into the bladder, and the man is entirely relieved of his most distressing malady.

Mr. COOKE also referred to the case of a butler, who was the victim of distressing incontinence of urine, which especially showed itself when employed in his duties, and had existed for six months. Mr. Cooke found two strictures, as in the former case, and was enabled, by carefully-repeated catheterism and the use of the muriated tincture of iron, with occasional aperients, to restore the patient to perfect health. In conclusion, Mr. Cooke remarked, that he believed the constitutional treatment of this class of diseases was of the highest moment, and that, if attended to, catheters and bougies, used with judgment, would remedy all the diseases to which the urethra is obnoxious, and render the use of the knife unnecessary.

Dr. S. GRIFFITH exhibited a preparation of Intussusception in an infant.

Dr. ROUTH read a paper on

FÆCAL FERMENTATION AS A CAUSE OF DISEASE.

The author first referred to the conditions insisted upon in a former paper as favourable to emanation—i. e. evaporation of morbid miasmata: 1st. A certain amount of temperature, and a light state of atmosphere. 2d. Moisture in the air. 3rd. The existence of ammonia always present in contagious diseases, and in the decomposition of organic matter. Whereas the opposite state, a low temperature and heavy state of atmosphere, and dryness, favour the deposition of such miasmata to the surface of the earth, and their solution in water. From such data, when known, we could almost always argue, *à posteriori*, as to whether the poison were imbibed in water or respired in air. At very

low temperatures, 0° Fah., and even some degrees above that, he believed emanation was impossible. Vapour at 0° Fah. contained only 0.856 of moisture; at 95° Fah.; 17.009. Even at 11° Fah., it was nearly 0; at 50° Fah., 2.5. In reference to this point, Dr. Routh alluded to the views of Dr. Barton, of America, on yellow fever, as confirmed by Dr. Hunt, of Buffalo, who had shown that yellow fever never occurred except when heat and moisture concurred with what they called terrene causes—i. e. upheaval of soil and decomposing organic matters. Dr. Routh then spoke of the nature of some of these miasmata, some of which were like perfumes, detectible by their effects on the body, but not chemically; others, like carburetted hydrogen, sulphuretted hydrogen, and phosphuretted hydrogen, were discoverable as such, and no doubt concurred in the production of symptoms. These emanations required a certain amount of heat for their development—according to Chisholm, from 60° to 90° Fah., above or below which they were destroyed. But in many cases something more was needed, and it was a favourable electrical state of the atmosphere. It was known that the electric effects varied with the degree of moisture in the air; and sometimes, as in typhus, the mucous membranes give positive electricity, and the skin negative, which was the reverse of what was observed in health. Dr. Routh then proceeded to consider the injurious influences of fecal emanations, in proof of which he quoted the evidence of Drs. Sutherland, Grainger, and Lewis. In the case of the Christchurch Workhouse, Spitalfields, where the emanations of a manure manufactory, especially when the wind blew from the manufactory towards the workhouse, gave rise to typhus and typhoid fever, and gave a malignant character to measles, small-pox, &c. The same thing was observed in St. George's, Southwark, in the summer of 1847, where, from a similar cause, intractable diarrhoea resulted. The mortality in places exposed to the effluvia of night soil, as in the potteries of Kensington, the Witham suburb of Hull, was always very much greater than in other ordinary localities. The author then alluded to the objection which had been raised about the healthiness of Montfaucon, near Paris, and its neighbourhood. Statistics in reference to the relative sanitary condition of this locality, as compared with others in Paris, were, however, wanting; but it was a known fact, that when the wind blew from that quarter towards the Hôpital St. Louis, puerperal fever was generated in the lying-in wards. If the workmen of Montfaucon themselves escaped typhus, it was due rather to the strong animal food they indulged in, as compared to other workmen of Paris, than to their occupation. Debility and bad food had been shown, both by Drs. Allison and Corrigan, to make persons very obnoxious to typhus.

(The time of the Society not allowing Dr. Routh the consideration of specific diseases, cholera, dysentery, typhus and typhoid fever, was omitted, and the author proceeded to the rules of treatment to be adopted.)

If the views above enunciated were correct, the remedies called for were such as would check fermentation. These were, alkalies, mineral acids, concentrated vegetable acids, volatile oils, alcohol, sea salt, the metallic salts, especially mercury, sulphurous acid, arsenious acid, chlorine, creosote, &c., and charcoal. A lesson might, moreover, be learnt in regard to treatment in these cases, from the processes employed for deodorizing manure. One way was, by collecting the slime and mud of large rivers, which being burnt, owing to the organic matter contained in it, yielded charcoal, in very minute divisions. Peat cinders (the refuse of carbonized peat), the bran of sawed wood, and some kinds of mould, had a similar effect. Hydrochloric acid, the tribasic phosphate of soda, and the mother-liquor of salt-works, were equally good disinfectants. Amongst this list one could not fail to be struck in recognising those remedies which have been found most efficacious in the treatment of many of the diseases before referred to. Thus, in cholera, sulphuric acid, charcoal, saline injections, common salt, and mercury; in diarrhoea, creosote; in dysentery, sulphate of copper, alum, and charcoal; intermittent fever, charcoal and arsenic; typhus, mercury, effervescent, &c. There could be no doubt that for every disease generated by fermentation there was a peculiar antiseptic most fitted for selection; thus arsenic might be the best for skin diseases, because it acted chiefly on the gelatinous tissues; so there was probably one most applicable to diseases of the mucous membrane, glands, &c., but few of these were known certainly. These remedies, however, only applied to the individual; something more was required for the sanitary condition of communities. Two of these general remedies had been lately much spoken about—viz. charcoal and sea-water. Charcoal had been alluded to before as an antiseptic. From Dr. Stenhouse's inquiries, however, it appeared to be also a destroyer of ferments, as well as a deodorizer, the first property being due to the large quantity of oxygen contained in its pores, which burnt, as it were, the decaying matter. Dr. Routh then alluded to the series of papers on this subject, published in the *London Journal of Health*, by Dr. Richardson. Charcoal filters applied over our gully-holes and water-closets might, in great measure, destroy the bad odours; still all the gully-holes could not be closed, as mud and rain must descend into the sewers; hence it was imperative to deodorize the sewers themselves. The price of hydrochloric acid, chloride of lime, and ordinary charcoal, rendered the chance of their general employment quite improbable; but charcoal prepared according to Mr Salmon's method, by the combustion of the Thames soil, would suffice for all purposes. All that would be necessary would be, its admixture with the water by which the sewers were ordinarily flushed, which could be done by forcible agitation of the water and charcoal prior to its diffusion.—*Sea-water*: As a supply of water had been of late recommended by Mr. Fuller, Dr. Routh was fearful, from what he had observed at the sea-side, and

in marine as compared with fresh water vivaria, as also from some experiments made, that organic matters would putrify much more readily in sea-water than in fresh. If sea-water therefore were used, it must also be mixed with charcoal; and this might readily be done with the foul Serpentine or Thames water, which would be thereby completely deodorized and purified, and this would be effected at much less expense. If the matter of sewers were in this manner collected at some distant point, we should obtain, moreover, an excellent deodorized manure, and our London streets and river would be comparatively sweet and pure, and as a result disease would be less frequent and fatal.

Dr. HUNT commended the employment of charcoal in drains, and believed peat charcoal would soon be introduced from Ireland.

Dr. WALLER LEWIS recommended its use in the vaults underneath churches. He believed that epidemics arising from emanations might occur with a dry state of the atmosphere, and referred to a case at Herne Bay. He gave instances of great prevalence of cholera at several watering places at which there is not the termination of a river. He disapproved of the washing of London streets with sea-water.

Dr. SNOW believed that the poison of cholera evacuations would not arise with watery vapour. He thought that the poison was generally swallowed with food or drink. Charcoal was only a deodorizer, not a disinfectant. He objected to the use of sea-water in our streets, and believed the emanation of sulphuretted hydrogen would be intolerable. The mixture of animal matter with sea-water caused decomposition, and very disgusting emanations. There was very little connexion between offensive emanations and the origin of cholera.

Dr. E. SMITH mentioned facts amongst the Hindoos opposed to Dr. Snow's theory—viz. the habit of defecation in places apart from habitations, the religious habits of cleanliness, the mode of separate cookery and feeding, all tending to prevent the introduction of offensive matter into the mouth. He had also learnt from officers commanding camps that cholera often occurs in a single night from change of wind. He disputed Dr. Routh's statement, that epidemics arising from emanations do not occur when the air is dry, and referred to the state of the atmosphere in the period of the prevalence of cholera and yellow fever.

Dr. SNOW explained.

Dr. HEADLAND described the classes of antiseptics and their mode of action by eliminating oxygen, &c. He did not consider hydrochloric acid, chalk, and alkalies as antiseptics, nor were antiseptics necessarily remedial agents. Sea-water accelerates putrefaction. Dr. WINN exhibited a specimen of

ABSCESS OF THE BRAIN,

which he had removed from the body of a lady who had been attacked with puerperal convulsions and coma about a fortnight before death. For the early history of the case he was indebted to

Mr. Halford, with whom he saw the patient. From this gentleman he learned that the patient, a lady thirty-eight years of age, was seized in the first instance with convulsions, about six weeks before her confinement. The second and fatal seizure occurred two days before labour. The convulsions were of an epileptiform character, and followed by profound coma. The labour was unusually rapid, the child having been suddenly expelled by the unaided efforts of the uterus, while the mother was perfectly unconscious. She had never suffered from convulsions prior to this last and second labour. Dr. Winn saw her for the first time ten days before death. She was then lying in a state of stupor similar to that arising from concussion of the brain. When roused, she would stare wildly, put out her tongue when asked to do so, and then relapse into a state of unconsciousness. The urine was passed involuntarily, her milk was scanty, and the lochia very offensive. She had lost three sisters, one from phthisis, and her brother was supposed to be insane. A great point of interest in the case was the fact that the first seizure supervened on a moral shock of a peculiar kind. She received the intelligence, at one and the same time, of the death of her child and of a rich legacy that had been bequeathed to her husband. As she had been suffering from pecuniary difficulties for a long period, and had never been a person of strong intellect, it may naturally be inferred that the conflicting emotions attendant on the receipt of such a singular combination of good and bad news, must have acted most injuriously on a weakly-organized brain. It was worthy of remark, that, a short time before death, the muscles of the jaw were fixed by a sort of tonic tetanic spasm, and it became impossible to feed her. This event probably hastened her death. The brain was carefully examined by Mr. Halford and Dr. Winn about thirty hours after death. The skull was remarkably thick, and all the bones of the body were largely developed. The membranes of the brain were healthy; and no disease could be detected in the right hemisphere of the brain. In the middle lobe of the left hemisphere extensive disease was discovered. Nearly the whole of the upper portion of the medullary substance was in a softened state, the consistence of cream. At the base of the same lobe was found a mass of coagulated lymph, containing an abscess the size of a bean. It was worthy of notice that the convulsive movements which preceded death were chiefly confined to the right side of the body.

Mr. PULVERMACHER exhibited his chain battery.

Mr. MILTON exhibited an armed bougie.

Dr. RICHARDSON admitted Dr. Brinton's claim to priority in his discovery that antimony injected into the tissues of the skin may be immediately found in matters ejected from the stomach.

Mr. H. SMITH exhibited the bones in a case of resection of the hip-joint by Mr. Jones, of Jersey; and also in another case at an earlier period.

Dr. HYDE SALTER read a paper

ON THE PATHOLOGY OF HOOPING-COUGH.

After enumerating some of the many discrepant and imaginative theories of the nature of hooping-cough that writers on the subject had indulged in, the author stated, in answer to the question—to what category of derangements do the most constant and characteristic features of the disease the most intimately unite it?—that, in his opinion, it was to the contagious fevers—to those diseases which consist of the assumption into the body of some specific *materies morbi* introduced from without, and undergoing a certain process of self-multiplication within the system—to the zymotic diseases; in fact, in favour of this view, he said, there was this threefold evidence.—

1st.—That hooping-cough was contagious.

2nd.—That it runs a definite course, having certain premonitory signs: certain phenomena when the disease has attained its height, and certain sequelæ.

3d.—That it is self-prophylactic; a person having had it once, does not have it again.

Now, the three circumstances—contagion, definite course, and self-prophylaxis, are, he maintained, *par excellence*, the three characteristic circumstances of the contagious fevers, and the possession by any disease of these three features would always be, to him, a sufficient warrant for its admission into that family of disorders. The author then thus stated, in more exact terms, his views:—That the catching of hooping-cough depends upon the inoculation of the system with a specific poison; that this poison chooses for itself a certain eliminatory surface as its emunctory; that the surface that it so chooses is the respiratory tract of the mucous membrane, from the conjunctiva to the ultimate bronchial tubes, although the whole of the tract need not be involved in every case; that its material presence gives rise to an exalted sensibility and inflammation of the part; and that the exalted sensibility and inflammation constitute the proximate cause of the specific symptoms. The author's conviction of the correctness of the above theory was based on the following considerations:—

a. The premonitory symptoms of catarrh, injection of the eyes, coryza, &c.

b. The symptoms of vascular disturbance of the trachea, bronchial tubes, large and small, down even, in many cases, to the ultimate lung structure, that generally accompany or follow the cough.

c. The intermediate position in regard to time, of the laryngeal, between the nasal and the bronchial symptoms, implying a creeping down of the condition of the mucous membrane, in a regular course.

d. The power which one child will have, who does not hoop, of communicating the disease to another who will; showing that the spasmodic part of the affection is non-essential.

e. The eliminatory power of the surface, which is consistent with the supposed final cause of its being affected.

f. The support derived from the whole weight of the argument of analogy.

Dr. Salter finished his paper by refuting, in succession, certain objections to his theory, which he could conceive others to make, but which, from our limited space, we are unable to enumerate.

Dr. RICHARDSON believed that whooping-cough belonged to the zymotic class of diseases. He advised that Dr. Salter should ascertain if the mucous is inoculable, and suggested the pig as a fit animal. He had seen pigs with croup, small-pox, measles, and plague. Inoculation acts well in modifying disease, by introducing but a very small dose at once, and for the same purpose it is advantageous to inoculate from matter obtained from animals which had been the subjects of the disease.

Dr. EDWARD SMITH had proved, in a paper published in the "Transactions" of the Royal Medical and Chirurgical Society, that the deaths from whooping-cough were mainly due to bronchitis; but he believed that inflammation was only an accident, and not an essence of the disease. He had doubts as to its being a blood disease, in the sense of being introduced into the system in the form of an organic poison; but, at all events, he considered that the spasm is all that distinguishes it necessarily from a common cough. The secretion is in great part due to the violent spasmodic cough; and the plan of treatment, which in a large experience he had found suitable, was to arrest the spasm, and thereby both the cough and the secretion; so that, in a very short time, the attack is reduced to the condition of a common cough. Since the disease may thus be cut short in probably all uncomplicated cases, and yet not be more liable to return than when allowed to run its course, he could not support the author's theory of elimination of the poison in the secretion of the mucous membrane of the larynx and bronchi. It is, however, just possible that the supposition of the gradual destruction in the system of the poison might account for the non-recurrence of the disease when thus cut short; but that would be an assumption, and, if true, would render the theory of elimination of no value in practice. He strongly commended the employment of small and increasing doses of morphia, on the plan laid down by him in a paper published in the *Edinburgh Medical Journal* for May.

Dr. WINN believed that the disease did not run through a regular course. He admitted that it is a contagious disease, but its evidences are mainly nervous.

Dr. WEBSTER remarked upon the difference of opinion existing as to the pathology of the disease. He did not consider it a contagious disease in the sense that measles is contagious, and he did not think it run through a definite course. It may also recur. It is more common in the winter, and with northerly winds and frosty weather. Change of wind and air are often beneficial. Treatment will often cut short the attack. He believed the disease chiefly affected the head. It is more fatal amongst female young children.

Dr. CAMPS thought that the author's cases must have been complicated with some inflammatory condition. Mild temperature is beneficial. It does not run a definite course, and treatment may out it short.

Dr. RADCLIFFE did not believe in the necessary connexion between whooping-cough and true inflammation, and when that complication exists, the hoop is suspended. The disease is capable of being arrested, and hence does not run through a definite course.

Dr. HEADLAND did not agree with the peripheral theory, and thought that the centric theory accounted for the production of the paroxysm. Many persons do not act upon eliminating parts of the system. He did not approve the experimentum crucis.

The author replied.

PATHOLOGICAL SOCIETY OF LONDON.

MR. ARNOTT, PRESIDENT, IN THE CHAIR.

MR. NATHANIEL WARD exhibited a specimen of a

SMALL INTESTINE THAT HAD FORMED A HERNIAL PROTRUSION IN THE THIGH.

Strangulation had taken place, and ulceration through all the coats of the gut at its inner margins where it had been in apposition in the Gimbernat's ligament. A weaver's wife, a feeble and thin woman, aged forty-five, was admitted into the London Hospital under Mr. Luke for a right femoral hernia that had been strangulated for six or seven days. Feculent matter escaped after the coverings of the sac had been divided, and on opening the sac, which had given way at its inner part, the faeces were seen to issue from an ulcerated opening in the gut equal in length to the concave border of Gimbernat's ligament. The patient died five hours after the operation. On the post-mortem inspection it was found that about four-fifths of the calibre of a piece of the small intestine had formed the rupture. In this instance the taxis had never been applied. The case illustrates the fact that the greatest amount of lesion to the bowel in strangulated femoral hernia occurs in that part of it which is in relation with the sharpest and most unyielding of the tendinous boundaries of the femoral canal—namely, Gimbernat's ligament.

FATAL INTESTINAL OBSTRUCTION, IN CONSEQUENCE OF A TWIST IN THE MESENTERY, AND THE FALLING OF SOME FOLDS OF INTESTINE OVER A TRUE DIVERTICULUM.

In December, 1855, a baker boy, of a strong robust constitution, was seized, early in the morning, after taking a hot cup of coffee, with violent pain in the stomach, followed by sickness. About nine hours after the attack, he was seen by Mr. Beale and Mr. Williams, of Plaistow, who found that the boy's bowels had been relieved two days before: that his pulse was 120; his tongue slightly furred; countenance anxious; and pain and

tenderness on the right side of the abdomen. These symptoms, together with complete constipation, continued, with some variation in intensity, until the sixth day, when those of general peritonitis set in and carried the patient off on the ninth day from the attack. On an inspection conducted forty-eight hours after death, the peritoneum was found to exhibit the result of inflammation, the intestines being matted together, and connected with the abdominal walls. The duodenum, jejunum, and ileum were greatly distended, the lower portion having been highly inflamed, and about two loops of it being quite black from congestion. The mesentery in connexion with these loops had been twisted on itself and caused their strangulation; and while in this state the folds had fallen over an intestinal diverticulum proceeding from the small gut to the linea alba, about one inch below the umbilicus, and thus giving rise to an additional amount of mechanical obstruction, which led to a fatal termination. This diverticulum was five inches long, and thirty-four inches distant from the cæcum.

Dr. THEOPHILUS THOMPSON exhibited

A PORTION OF LUNG CONTAINING A CONSIDERABLE CAVITY, THE RESULT OF THE BREAKING DOWN OF CEPHALOMATOUS DEPOSIT,

and which had contained six ounces and a half of coagulated blood which had escaped from an ulcerated artery. The surface of the cavity was irregular, rough, and of a greyish-white colour. Material scraped from its surface by Dr. Thompson's clinical assistants, Messrs. Bond, Vise, and Garrard, and examined in the microscope, was found to contain cells of various shapes and sizes, flattened, angular, fusiform, or oval, and many of the larger cells had nucleated nuclei. All the other organs of the body were healthy, and to the unassisted eye there was no appearance of deposit in either lung excepting in the cavity; but with the aid of the microscope, cancer elements were discovered, lining the air vesicles, filling the bronchial follicles, intermixed with loose bronchial secretion, and charging the minute bloodvessels. The patient, a stout, well-made man, aged thirty-six, had died in the Brompton Hospital, in consequence of profuse hæmoptysis, from which he had suffered more or less for seventeen months. He had no hereditary liability to malignant disease. The symptoms commenced a month after a blow. The seat of the disease was the free surface of the mucous membrane, and, although appearing to the naked eye limited to a certain portion of the base of the right lung, proved to be extensively diffused.

Mr. SIBLEY exhibited a specimen of

VILLOUS CANCER OF THE BLADDER,

taken from a single woman, aged thirty-four, who died in the Middlesex Hospital, under the care of Dr. Stewart. For three years before her death, she had suffered from frequent seizures of pain in passing urine, which frequently contained considerable quantities of blood. For some time, however,

there were frequent intervals, in which she was almost free from these symptoms. During four months she had lost flesh, and expired after great suffering. In the post-mortem examination, the only disease worthy of notice was that of the urinary organs. The kidneys exhibited signs of inflammation. On opening the bladder, a large shaggy tumour projected from the front of the bladder into its cavity. The tumour consisted of a number of villi. There were two other smaller but similar growths in the bladder. The microscopical examination showed that these villi were composed of cell-structure similar to that forming the epithelium of the bladder. They contained vessels and fibrous tissues in their interior. Dr. Sibley drew attention to the case as an example of the "dendritic" mode of growth. Although the bladder was a specimen of what Rokitsansky had called "villous cancer," there did not appear to be any evidence of its cancerous nature. The close resemblance of the structure to the healthy chorion was also noticed.

Dr. WILKS presented

A MULTICULAR OVARIAN TUMOUR, CONTAINING INTRA-CYSTIC GROWTHS, COVERED WITH CILIATED EPITHELIUM.

Martha S—, aged thirty-three, a patient of Dr. Gull's, in Guy's Hospital, had suffered from an ovarian tumour for a year and a half. Death was caused by peritonitis and fecal abscess. The tumour was as large as a new-born child's head, and was of that form of disease known as alveolar dropsy, consisting of numerous cysts, filled with a gelatinous-like fluid. In the lower part of the tumour, where the cysts were smaller, the disease much resembled colloid cancer. Hence the reason why this form is sometimes called malignant. The only interesting feature in the case was the fact, that besides the ordinary tessellated epithelium which lined the cysts, there arose from the intercellular partitions numerous microscopic growths, which were covered with a most delicate ciliated epithelium. The case was brought forward for the sake of association with an analogous one exhibited at the last meeting of the Society by Mr. Athol Johnson, where the testis in a child was converted into numerous cysts, which contained gelatinous material, and which were covered by a similar ciliated epithelium.

Mr. CURLING exhibited

A LARGE MALIGNANT TUMOUR OF THE THIGH, FOR WHICH HE HAD PERFORMED AMPUTATION AT THE HIP-JOINT.

M. A. G—, a married woman, aged forty, was admitted into the London Hospital, on the 4th of March, on account of a large tumour of the right thigh. She had enjoyed tolerable health for some years, when, in August last, she noticed a small lump in the thigh. Various applications were made to it, but the swelling continued steadily to increase, without pain. She stated that about a fortnight before her admission into the hospital,

the surgeon in attendance on her passed a grooved needle into the tumour, and drew off about a cupful of blood. On examination, Mr. Curling found a tumour of great size, occupying the upper part of the thigh, chiefly in front, and towards the outside, and extending as high nearly as the groin. The tumour had an elastic, fluctuating feel, and was tender, and the seat of some pain. Mr. Curling introduced a trocar at its outer part, and removed about thirty ounces of bloody fluid. The tumour felt less tense and uneasy after the puncture, but it soon regained its former size, and during the three following days it rapidly increased. It having been decided in consultation that nothing short of an amputation at the hip-joint could be of any service, the operation was performed by Mr. Curling on the 11th of March, the patient being under the influence of chloroform. Not more than from four to five ounces of blood were lost in the operation. Up to the present time, (the 18th,) the case had proceeded most favourably. The tumour was somewhat pear-shaped, the base being superior. It was bounded on the inside by the adductor muscles and femoral canal, and on the outside it invaded the vastus externus muscle, which was extended over the growth. It rested on the outer part of the femur, and extended close to the bone as high as the great trochanter. There was no distant capsule, only a slight condensation of the parts immediately surrounding the tumour. It was composed of masses of brain-like matter, intermingled with large coagula, chiefly towards the lower part, and a number of imperfect cysts, some of considerable size, containing a bloody fluid. The outer and front surface of the upper portion of the middle third of the femur, for about three inches, the part upon which the tumour rested, was very vascular, rough, and granular, and abraded to such an extent as to destroy the rounded outline of the bone. The periosteum covering this part was much thinned. The tumour exhibited the microscopic characters of encephaloid cancer, and some of the masses were undergoing fatty degeneration.

In reply to an inquiry of the President, Mr. Curling stated, that in performing the operation he had made two flaps, an anterior and posterior; and owing to the disease having extended very high up, he had been unable to transfix with the knife, and had cut from without inwards. He made the posterior flap first, and after the chief arteries in it had been secured, he then made the anterior flap, and completed the operation. By this means, he had been able to prevent the loss of blood, which was not greater than in an ordinary amputation of the thigh.

ROYAL MEDICAL AND CHIRURGICAL SOCIETY.

MR. CESAR HAWKINS, PRESIDENT.

ON ENCEPHALOCELE, BRING THE HISTORY OF A CASE, WITH A TABULAR ANALYSIS OF SEVENTY-FIVE CASES. BY JOHN Z. LAURENCE, F.R.C.S., Surgeon to the Northern Dispensary.

THE author remarked that congenital hernia of the brain was a rare malformation, and that it was a still rarer circumstance for the subject of it to live for any length of time, especially when the protrusion was large. In the present case the tumour equalled in size the child's head, yet life was prolonged for 144 days, and in that respect it formed a more remarkable case than any which the author has met with in his researches for his table. The mother was healthy, and had previously given birth to five healthy children. The labour was natural; the child a female. At birth the tumour was not quite so large as the head. When first seen by Mr. Laurence, two months and a half after its birth, it presented a conical tumour as large as its head, apparently originating from the occiput and nucha, and measuring five inches and a quarter in length, and three and a half from side to side. The walls of the tumour were very thin; it fluctuated freely to the touch, was very transparent, but there was no pulsation perceptible. The child had a vacant, idiotic aspect, was to all appearance blind, but was startled by any sudden noise; the limbs were not paralysed; it was found dead in the bed beside its mother. On examination after death, the tumour was found to contain the entire cerebellum and a portion of the cerebrum; these parts had been protruded through an opening in the occipital bone, which was oval in form, continuous with the foramen magnum, and measured (including this latter) two inches and a quarter from before backwards, and one inch and a quarter across. The paper was accompanied with a valuable analysis of seventy-five cases of this malformation, divided into three tables—the first, containing an analysis of fifty-three cases of encephalocele occurring in the occipital region; the second, an analysis of seventeen cases occurring in the frontal region; the third, an analysis of five cases occurring in the parietal and temporal regions. The dates of the cases ranged from 1677 to 1853.

AN ACCOUNT OF THE ARRANGEMENT OF THE MUSCULAR SUBSTANCE IN THE URINARY AND CEREBRAL OF THE GENERATIVE ORGANS OF THE HUMAN BODY. BY GEORGE VINER ELLIS, F.R.C.S., Professor of Anatomy in University College, London.

It would be vain to attempt to represent this important communication by an abstract; all that can be done is to draw attention to some of the most striking points in it. After a minute description of the three more or less perfect strata of involuntary muscular fibres which constitute the muscular substance of the bladder—viz. an ex-

ternal or longitudinal, a middle or circular, and an internal longitudinal or submucous stratum,—the author proceeds to trace them through the rest of the genito-urinary apparatus. With respect to the prostate, after a very minute description of its structure, the author deduces that it is less of a glandular than of a muscular body, and is only a largely-developed portion of the circular muscular layer that invests all the urethra behind the bulb or spongy portion, and which is continuous, without interruption, with the circular fibres of the bladder. As the prostatic enlargement includes only part of that muscular stratum of the urethra, the author proposes the name *orbicularis, vel sphincter urethrae*, for both the prostate and the prolongation around the membranous portion of the urethra; whilst he would confine the old term *prostate* (without the word *gland*) to the thickened and more powerful part near the neck of the bladder. The submucous layer of the bladder is traced throughout the whole length of the urethra. A muscular covering of the vesiculæ and vasa deferentia, consisting of two layers of fibres, (one longitudinal, the other transverse,) is next described; and the paper concludes with a very elaborate description of the sheaths surrounding the spongy structure of the penis.

ON MERCURIAL FUMIGATION IN THE TREATMENT OF SYPHILIS. BY HENRY LEE, F.R.C.S., Surgeon to King's College Hospital and to the Lock Hospital.

After giving a sketch of the early history of fumigation in syphilitic complaints, its use, abuse, and abandonment, chiefly on account of the cumbersome and inconvenient apparatus employed, the author proceeded to notice the more modern method recommended by Mr. Langston Parker. He then pointed out the practical objection to the use of the grey oxide of mercury, arising from its very uncertain composition as procured from the shops, and finding from experience that it was the light-coloured oxide alone which volatilized and produced its effects upon the constitution, and having reason to believe that the light colour was due to the presence of calomel, the author performed a series of experiments with calomel alone, or mixed in a certain proportion with the grey oxide, the general result of which went to satisfy him, that for the purposes of mercurial fumigation, five or ten grains of calomel alone, are, in ordinary cases, quite sufficient; and that when the grey oxide is used, the admixture of a few grains of calomel will facilitate its sublimation, and ensure its medicinal action. Upon making comparative trials with the calomel alone, and combined with steam, (as in Mr. Parker's apparatus,) it was found to act more certainly, and with greater regularity in the latter case. The following simple plan was suggested by the author: two small spirit-lamps are used; over one of them is a thin metallic plate, upon which the calomel is placed; over the other a cup of hot water. The patient sits upon a cane-bottomed chair, placed over the lamps, enveloped in a blanket; or, if greater economy be necessary, the

patient may heat a thick tile in the fire, place it in a night-stool, with a gallipot of hot water upon one corner of it, sprinkle the calomel over the surface of the tile, and sit over it enveloped, as before, in a blanket. The advantages of this simple mode of administering mercury to the system are, rapidity of action, while at the same time but little constitutional disturbance is produced, and all the severe train of symptoms of irritation and debility attendant upon the prolonged internal administration of the mineral are avoided. The small amount of heat used for the purpose of volatilizing the calomel in this apparatus constitutes the essential difference between Mr. Lee's mode of using the vapour of calomel, and any former trials with that form of mercury; for if the temperature be very high, the calomel is at once converted into vapour and dissipated. The paper was accompanied with a tabular view of twenty cases in which the grey oxide was used, either alone or in combination with calomel, and calomel was used alone, and shows the age, sex, form of disease, preparation of mercury used, and the time at which the mouth became affected by the fumigation; the result being, to prove that the patient's system can be as readily influenced by a small quantity of calomel in vapour, as by a large quantity of the grey oxide or bisulphuret of mercury.

EPIDEMIOLOGICAL SOCIETY.

MONDAY, JULY 7TH, 1856.

DR. RICHARDSON read a paper

ON THE PRINCIPLES OF THE INDUCTIVE PHILOSOPHY AS APPLIED TO THE STUDY OF EPIDEMICS.

Dr. Odling, Dr. Tripe, Mr. W. Reudle, Mr. Hunt, and Dr. Greenhow, took part in the discussion, which was of a lively and instructive character. Dr. Richardson replied. A vote of thanks was accorded to the author of the paper for his production.

Dr. BABINGTON read a letter addressed to him, as President, by the Committee of the Epidemiological Society for Supplying the Labouring Classes with Nurses in the time of Epidemic and other Sickness, directing attention to the progress made by the committee in regard to their applications to the Poor-law Board. The letter addressed to the Poor-law Inspectors by the Poor-law Board, calling upon them to aid the committee in their endeavours, was also read by the President.

The meeting was well attended by its members, and amongst the visitors present were several of the newly-created medical officers of health.

Dr. Ansell, Dr. Challies, and Mr. H. Northover Pink, were proposed as members, and Drs. Aldis and Tripe were elected members of the Society, Dr. Von Iffland, of Beaufort, New Quebec, and Mr. W. Isidore Cox, were elected corresponding members.

It was announced that at the meeting in

August would be read the report (drawn up by Dr. Babington) "On the Cholera which visited Her Majesty's Black Sea Fleet in the autumn of 1854," compiled from the returns of the medical officers of the fleet to queries drawn up by the Cholera Committee of the Epidemiological Society, and sent out by order of the Government.

The Crimea.

MILITARY MEDICAL AND SURGICAL SOCIETY.

SATURDAY, APRIL 17TH, 1856.

SIR JOHN HALL, M.D., K.C.B., IN THE CHAIR.

THE proceedings of the last meeting having been read by the secretary, Dr. MOUAT, C.B., Deputy Inspector-General, made the following

OBSERVATIONS ON SOME POINTS CONNECTED WITH THE USE OF CHLOROFORM IN MILITARY PRACTICE.

The author commenced by stating:—The subject of the administration of chloroform in the well-known shock or depression following severe gun-shot injuries, is one, from the nature and peculiar interest it possesses at the present time, that requires no apology for its introduction, and appears to me to be a fit and proper one for discussion in this Society. The profession at home naturally look to the medical officers of this army to contribute their mite of practical experience towards the settlement of this important and disputed question; but I much fear they will be somewhat disappointed in the results and conclusions arrived at. Great and grave doubts are beginning to arise in the minds of some unprejudiced practical surgeons and thinking observers, at home and abroad, as to the indiscriminate use of this powerful anæsthetic, so tempting to the sufferer, yet at times so fraught with danger, and uncertain in its results, that I defy the most strenuous advocates for its employment to say, *à priori*, what its results may prove in any given case—in other words, to say whether or what fixed laws it always follows, if any. The fatal cases, unfortunately, from the simple extraction of a tooth or removal of a finger, to the more formidable amputation at the hip-joint, leave no doubt as to its occasional melancholy results. Dr. Simpson's cases are, in a great measure, confined to its administration in parturition—a simple process of Nature; therefore his great experience does not apply strictly to the subject now under consideration. Dr. Snow's practice, at least a very large proportion of it, I have been informed, has occurred in dental surgery, at all events, not in gun-shot wounds; and no one I am sure, will attempt to compare the shock of the extraction of a tooth, or ordinary surgical operation, to the amputation of a limb close to the trunk. The first case in which I saw chloroform administered in this war was one peculiarly

adapted to test this question. It was on the day of the memorable and bloody battle of Inkermann; and the patient was an officer, twenty-nine years of age. The injury was a compound comminuted fracture of the femur, near its neck, with injury to the bloodvessels and nerves. Much blood had been lost on the field. I need hardly say, after this explanation, what the operation was. Several hours were allowed to elapse after the receipt of the wound, and reaction, with the aid of stimulants, had taken place. The patient was in great pain, most anxious and urgent that the operation should be performed, and earnestly stipulated for the administration of chloroform. At the request of the operator, and after a deliberate consultation had been held, I administered the chloroform, which was measured, and amounted to about two drachms. He was rapidly and easily affected; and was neither sick nor convulsed. The operation was performed with great skill by Mr. Wyatt. The loss of blood was inconsiderable; but, I regret to add, the sufferer died somewhat suddenly afterwards, notwithstanding all attempts at artificial respiration, the cold douche, &c. Some persons present entertained the opinion that he perished from the effects of chloroform; my own is, that he died under the combined influence of shock and the depressing effects of the chloroform inhalation. It is worthy of remark, that the patient had previously been put slightly under the influence of chloroform in order to examine the extent of injury, as he would not submit without, and no harm resulted. This is case No. 1, and cannot, therefore, be explained under the convenient term of idiosyncrasy. Great weight is most undoubtedly due to the opinion of so experienced and talented an operator as Professor Syme; but I much doubt if even this distinguished surgeon has had any experience in injuries of the peculiar nature we are now about to discuss (notwithstanding the opinion of most civil surgeons, as to their being no essential difference between gun-shot and railway injuries). I am fully aware that I am standing on dangerous ground in provoking many antagonists, to say nothing of public opinion, for this appears to have become a popular as well as a professional question. No one yet can have forgotten the storm of abuse, indignation, and misrepresentation with which a certain memorable departmental order on the subject was received. Even the Sebastopol committee, in their anxiety to saddle some one with something, actually went out of their way in their endeavour to cast unmerited odium on the medical department of the army on this very subject; and yet what did this famous order after all amount to? A wise and humane caution from an old and experienced officer in the field to his younger professional brethren, most of them entering for the first time on new and trying duties, requiring all the resources of our art, backed by the wisdom of experience; for, after all, experience must be our schoolmaster. We are bound to respect such an opinion coming from such a source. I am not about to enter into the question as to whether that caution might not

have been more carefully and judiciously worded, for no doubt it would have been differently expressed if intended for the perusal of a popular instead of a professional public. The introduction of chloroform was, no doubt, one of the grandest discoveries and greatest blessings of the age. It has often contributed to sustain the fortitude of many a brave warrior, and given confidence to many a timid operating surgeon; but anything calculated in the remotest degree to lessen the horrors or soften the terrors of war cannot but be considered a boon to suffering humanity; hence chloroform must claim almost universal suffrage. It does not, however, follow that such an agent should be used indiscriminately, or as a matter of routine, as is too frequently done; but its employment should be withheld when it can be dispensed with, and whenever intended to be employed, too much caution and care cannot be exercised in its administration. Most of the fatal cases have doubtless been sought out and brought before the public. A reference to statistics is here not in my power; but I have been informed by one medical gentleman, Dr. Rooke, that for some time, about four years ago, he kept an account of fatal cases, and in a short period collected no less than forty-six. The statistics of this subject are very imperfect; many cases may have been hushed up, but by far the larger proportion have sunk silently into their graves, from that peculiar state of nausea and depression following its use, in which perfect reaction is never thoroughly established, the desire for food never returns, and the patient sinks as it were stealthily, and dies from exhaustion in from twelve to twenty-four hours. These cases are far more numerous than is generally supposed, and many of them may fairly be termed "deaths from chloroform," but are never so returned. I can at this moment bring two or three such to my recollection. Medical men are naturally anxious to avoid the kind of publicity that must attach to fatal cases of operation under chloroform, and therefore only return such as actually die on the table; if the patient survives only half an hour, it is easy to say he died from the effects of the operation. This obvious source of fallacy ought candidly to be taken into consideration, and I think will go some way in accounting for the uniform success of certain practitioners.

To continue the illustration of this subject from the actual cases occurring in the surgery of this war, the next instance to which I shall refer was a case of destructive injury to the bone and soft parts of the thigh. The left leg of a soldier was carried away by a round shot during the second bombardment; the knee-joint was smashed, and the femur fractured high up; the muscles and integuments of the opposite thigh were likewise lacerated. The patient was a remarkably fine muscular young man, and in perfect health. The shock had been great, from the extensive injuries and loss of blood. Perfect reaction had been established; he was calm, collected, and anxious for the operation under the influence of chloroform, which was administered carefully, and in the usual manner, by Dr. Blackley,

of the 14th Regiment, and he was easily influenced. I then proceeded to amputate the thigh, in its upper third, by the flat operation; about the average quantity of blood was lost, and it was necessary to apply the saw pretty close to the trochanter. The patient regained his senses for a short time, complained of præcordial oppression and abdominal pain, with great restlessness. He never rallied fairly, and died within an hour, never having been removed from the table. This is case No. 2. I was kindly assisted in this operation by Deputy-Inspector-General Taylor, who compressed the femoral artery at the groin, and who, I think it fair to state, considers the chloroform enabled the patient to go through the operation; for his opinion, founded as it is on the experience of two previous campaigns, I entertain the highest respect, but it appears to me to be a fair illustration of the shock of a severe gun-shot injury, in which the depressing after-effects of chloroform were not rallied from. As an instance of what may be done in such cases without chloroform, I may here state that Dr. Gordon, Deputy-Inspector-General of the 2nd Division, successfully removed the thigh by amputation at its middle third, and the arm at the shoulder-joint in the same subject, in succession; and I have the authority of Deputy-Inspectors-General Taylor and Gordon (both officers of great practical experience in India) for stating that, in the campaign on the Sutlej, amputations of the thigh proved more successful without chloroform than they have done in this campaign under its influence; Dr. Taylor, however, is of opinion that this result may be due to other causes. With regard to the stimulating effects of chloroform, upon patients about to sink from exhaustion of disease, as above quoted, this is a totally different state from the shock occasioned by severe gun-shot injury, with or without loss of blood; but I can adduce an instance of secondary amputation of the thigh, in which the patient was much exhausted after twenty-four days' suffering from a wound in the knee-joint. This instance was an unsuccessful attempt at conservative surgery, at the earnest solicitation of the patient, who nearly lost his life from the inhalation of half a drachm of chloroform, administered by myself: the operation was subsequently performed without chloroform, and with but little suffering. As this case—Sergeant Bennett, of the 30th Regiment—was seen by several medical officers here, I shall not enter into any detail, for fear of extending this paper over too great a space. Let me however, here, at once inform the Society that it is not the intention of this paper to treat on the merits of chloroform generally; they are admitted; and, to quote the words of a public commentator on the subject, "Chloroform is so priceless a boon to mankind, that we should all endeavour to ascertain, with the utmost watchfulness, the nature of the difficulties and dangers which beset its use." It is only to such that I refer, and I will therefore repeat the real questions at issue: 1st, Is the administration of chloroform, in the severe depression consequent on large gun-shot injuries, fraught with danger? 2nd, Are we justified, in a moral point

of view, in giving a dangerous remedy for such trifling operations as the removal of a finger or a toe, or the extraction of teeth, or bullets lying near the surface? I think any candid, conscientious observer, who has had the misfortune to meet with such a case as that of Private Martin Humphry of the 62nd Regiment—to recur to the Surgery of the War (this man died suddenly while under the influence of chloroform for the amputation of a finger)—will unhesitatingly answer, We are scarcely justified, in trifling or in unimportant injuries, in resorting to an anæsthetic that may so suddenly deprive a fellow-creature of life, while we possess so simple, so ready, and efficient a means of producing local anæsthesia as that described by Dr. James Arnott in *THE LANCET*. Whatever objections may be urged against this simple and humane means of producing anæsthesia, no fatal result can occur from its use. In all superficial operations, says Dr. Arnott, which constitute the immense majority, cold is superior to chloroform in the circumstance of safety, ease of application, or the saving of time and trouble, certainty of producing anæsthesia, and lastly of preventing subsequent inflammation. Anæsthesia will no doubt be henceforth a required element of every operation, but chloroform, fortunately, is not the only mode of producing it, and I trust there is a time coming when we may be able to restrict its use to such cases as cannot be effected by other means. The propriety of using an anæsthetic which occasionally destroys life, in simple cases, is questionable, while we possess one free from danger, easy of application, requiring no assistant, and, what is invaluable in military practice, “saving of time.” Anæsthesia from cold may be complete in a minute. One more case in illustration of the occasional ill effects of chloroform in the shock following loss of blood: Stephen Newing, private, 97th Regt., aged twenty-one, was wounded, on the 8th September, in the attack on the Redan, by a musket-ball through the left forearm, producing compound fracture of the ulna. He had likewise a flesh-wound of the right thigh, and a graze of the belly, both by musket-balls. He experienced a slight attack of diarrhoea on the 25th, up to which period he had been doing well; this was of no great severity. On the 30th, he had slight bilious vomiting; shortly after which it was discovered that hæmorrhage had taken place to a considerable extent from the ulnar artery, in all probability induced by the exertion of vomiting. He had lost about two pounds of blood before it was discovered. Upon a careful examination of the limb, it was found that about three inches of ulna was dead, and the wrist-joint appeared to have been involved. Amputation was therefore decided on, and was performed in about two hours after the discovery of the hæmorrhage, so that the man might in a certain sense be said to be under shock. Chloroform to the extent of one drachm only was administered, the operation was rapidly executed, and an unusually small quantity of blood was lost. He did not, however, rally from the effects of the chloroform; he vomited a fluid of the appearance of coffee-grounds, and gradually sank.

Artificial respiration, the cold douche, &c., failed to restore animation. Staff-Surgeon Matthew remarks, that he never at any time recovered from the effects of the chloroform insensibility; and although the immediate cause of death was doubtless loss of blood, or the direct action of chloroform on the brain, or asphyxia, still he is strongly inclined to believe, that had chloroform not been employed, he would not have lost the man. In such cases, the ebbing powers of life are just as likely to be suddenly arrested as stimulated to fresh vitality, for chloroform does not prevent syncope; indeed, it is one of the modes in which it destroys life. I have not seen that supporting power attributed to it, and here I differ from Dr. Snow, who thinks accidents from chloroform are to be prevented by care in the administration, not in the selection of the cases. In confirmation of Dr. Matthew's view of the case, a precisely similar one occurred to me in 1849, in which I had to amputate the forearm for secondary hæmorrhage after gun-shot injury implicating the wrist-joint. The patient in this instance, Private Hugh Swift, of the 13th Light Dragoons, shot himself through the wrist, while in a fit of intoxication. An attempt was made to save the limb; secondary hæmorrhage suddenly took place on the eighth day after the receipt of the injury, at midnight, and before it was discovered he had lost a considerable quantity of blood. A tourniquet was immediately applied, but such was his state of exhaustion that the propriety of amputation was questionable. He had, however, rallied sufficiently in about two hours, under powerful stimulants, and the amputation was performed without chloroform, and apparently without pain; but such was his condition that he could not be removed from the table for some hours. He ultimately recovered. Chloroform, I think, under these circumstances, would have killed him. In conclusion, I may state that I was present at every operation under chloroform performed at the General Hospital in camp during the siege, and several in the Third Division; that in many instances I administered the chloroform myself, generally on a piece of lint, the patient always being in the recumbent posture. In no instance was organic disease detected, and I have, almost reluctantly, come to the conclusions—1st. That there are states of shock, or depression from loss of blood following extensive injury, such as the loss of a thigh high up, or the arm at the axilla, in which chloroform may destroy life in various ways. 2nd. There are likewise cases in which, as I have stated, the patient never fairly rallies, but sinks gradually, without any effort at reaction to speak of: these cases are never returned as deaths from chloroform. 3rd. I cannot subscribe to the kind of argument sometimes used to justify its indiscriminate use—viz. that the invariable absence of pain to the patient, and advantage to the surgeon, fully counterbalance the risk of an occasional fatal termination. In trifling injuries, life is too precious to be thus trifled with; it is opposed to all moral laws; nor can the opinions of hosts of authors, dead or living, make it right in such cases.

Dr. TAYLOR, C.B., considered that the paper which had just been read must disturb the confidence with which we had been in the habit of administering chloroform in all cases of operation. If he understood Dr. Mouat's paper, the author conceived that there were secondary, as well as primary or immediate risks attending its use. The cases adduced did not seem to him to bear out that view. What had been regarded in these instances as secondary fatal effects of the anæsthetic agent, appeared to him (Dr. Taylor) rather as the consequences of severe operations, superadded to extensive injuries; he had not heard of direct fatal effects from chloroform in any of the severer forms of injury by gun-shot wounds; on the other hand, he could not say that in this class of cases he was convinced of any supporting power in the use of chloroform, and this, he believed, was the question mooted by Mr. Guthrie. As there was a remote risk of fatal effects from chloroform, of the primary or immediate kind, he (Dr. Taylor) did not think it advisable to administer it for the minor operations, as the extraction of bullets, teeth, and the amputation of lacerated fingers. It was, too, just in this class of cases that fatal consequences had been more frequently found to occur. One caution not generally insisted upon by writers on the administration of chloroform, was the necessity of the fully recumbent position. Dr. Snow did not appear to have noticed this point; but Mr. Syme particularly dwells upon the necessity of it in all cases, however trifling their nature. It was curious that one fatal case in this army occurred in which the chloroform had been administered to the patient in a sitting position, or, rather, merely reclining. He (Dr. Taylor) thought that abundance of fresh air was a great essential, and he thought he had observed during this war, that the chloroform took effect more benignantly in cases operated on in the open air.

Dr. GORDON, C.B., entirely concurred in the views expressed by the author, and seldom employed chloroform in severe cases; he thought that considerable risk was entailed. One case he remembered, of an officer, which proved fatal in five hours, and another in which the operation was obliged to be stopped. Chloroform was employed in the dose of two drachms. The medical officers of his Division, generally, agree with him in the inadvisability of employing chloroform in serious cases. He produced some statistics, and considered that in many of his cases the men would have died if it had been used.

Dr. SALL confessed himself a great advocate for the use of chloroform. He had never witnessed a fatal case under its use in Edinburgh, where, and at Glasgow, he had seen it employed for many severe operations. A statistical table would be of advantage as to the use of chloroform during the war; much, of course, depends on its purity, and the manner of employing it is most important. He would have no hesitation in using it in any case, even if organic disease should exist.

Mr. WYATT considered that chloroform was a powerful agent for good or evil, according as its

use was confined to particular cases adapted to its reception. But how could these be ascertained beforehand? He must premise his observations by saying, that he believed there were certain general conditions of system when chloroform was a very doubtful auxiliary to surgical practice; he more particularly alluded to those severe cases of injury requiring prompt and immediate amputation after an action in the field, where it is most important that a speedy reaction should be fully and quickly established. From what he had seen, he must confess that the result of his experience during this war led him to hesitate before admitting himself an advocate for the indiscriminate use of chloroform, and feeling conscientiously that there was a certain amount of risk sometimes attending its use, he never took upon himself the initiative of recommending it to a patient. He had witnessed, both in civil and military practice, some unfortunate results, which must undoubtedly be attributed to its use, and even where it had been administered by skilful people: but of course unless positive causes for the prohibition of its use exist, it is the duty of the surgeon to consider the patient's importunities to be released from pain. Until convinced to the contrary, he should still hold the opinion that it was not a remedy to be used indiscriminately in the severer injuries on the field. The remarks of Dr. Taylor respecting position, and the necessity of a sufficiency of atmospheric air, were most true and practical. Considering that deaths from pyæmia during this war had been more than usually frequent after amputations, he would throw out the suggestion, whether the frequent—he would almost say the indiscriminate—use of chloroform could in any way be connected with the results stated?

Dr. McLEOD should be sorry if the statements which had been made on the employment of anæsthesia in military surgery should go forth to the world, as he believed them to be neither correct, nor in unison with the opinions of the majority of army surgeons. He did not think there was anything peculiar in gun-shot wounds which made the exhibition of chloroform in them not so admissible as after the severe machinery and railway accidents of civil life, where its use was universally allowed to be so beneficial. Dr. Mouat had fallen into error in saying that Dr. Simpson's experience, and the statistics he furnishes, refer solely to obstetric medicine. Dr. Simpson published a paper in answer to the question, whether anæsthesia increases or diminishes the mortality of surgical operations, basing his deductions on the results of amputations of the thigh, leg, and arm, in thirty of the chief British hospitals; and he has shown that the lives of 6 persons in every 100 submitted to these operations have been directly saved by the use of anæsthesia. In the case of thigh amputations alone, he also shows that a large diminution of the mortality has resulted. Dr. McLeod did not think that death was justly due to the chloroform in the few cases recorded by Dr. Mouat, who had spoken of an immediate and a remote danger as following its use. The imme-

diate danger; he considered, in almost every case, arose from the mal-administration of it; and as to the remote, he could not see the logic of the deduction which ascribed death, twenty-four or thirty-six hours after the performance of a severe operation under chloroform, to the use of that drug. We saw sometimes such fatal results without chloroform, which, in his opinion, would often enable an operation necessary to the prolongation of life to be performed which otherwise could not be attempted. He considered that the respiration was the great guide to the administration of chloroform, and he showed the propriety of observing how death threatened, in order to ward off the danger of an over-dose. As to its being a cause of pyæmia, the idea was not only new, but remarkable.

Dr. WILLIAMS thought we had wandered from our subject in considering the general use of chloroform; he had never seen a case where any bad results had arisen; and he must confess that he had never heard any paper read with greater regret, giving, as he must suppose, the opinion of so conscientious and experienced a member as Dr. Mouat; but until he saw its effects, as explained by the author, he must reserve any opinion on the subject of the present discussion.

Dr. BURKE (3rd Buffs) had alluded to this subject formerly, and could speak in a most satisfactory manner of chloroform. One case only, of amputation at the shoulder-joint, proved fatal after its use; but the severe nature of the operation caused this patient's death. He certainly would not recommend the use of chloroform in minor operations. He had served in the Sutlej campaign, where the operations were disheartening; that was before chloroform was known; and he thinks that the operations would have been more successful under the use of chloroform. In an excision requiring prolonged time for its completion, he considers it most useful, and in none more than that of the elbow.

Dr. BONE (17th Regiment) saw the first three cases in Edinburgh, where chloroform was first used. He considered that it was always most important to examine the chest previously, to ascertain if any organic disease existed. He has kept a woman under its influence for nine hours, and feels convinced that many patients, after the reception of gun-shot wounds, were saved by the use of chloroform. He mentioned a case of severe gun-shot wound of the thigh, where it was most successfully employed. A case of tetanus, under his care, had been kept for three weeks under the use of chloroform, occasionally for nine hours at a time, and the man recovered.

Dr. GORDON alluded to the Sutlej campaign, where the operations were generally successful. Out of twelve operations performed in his regiment, one only was fatal. In the 24th Regiment, during the Punjab campaign, the general success of all the operations was very great. The returns of operations performed in the 2nd Division showed that fifty-three had taken place under chloroform, and forty-three without its employment, for the quarter ending the 30th of September.

Dr. CRAWFORD would beg to return to the real objects of the discussion and to say that, it not being the custom of military surgeons to operate during shock, the objections to the use of chloroform at that period fell to the ground.

Dr. JESSOP alluded to a letter by Dr. Kidd, showing the safety of chloroform in gun-shot wounds. Dr. ROBINSON had performed twelve capital operations under the influence of chloroform, with only one immediately fatal result, and he had very frequently used it himself in minor operations.

Dr. CRAWFORD thought that the heading of Dr. Mouat's paper should be changed, as it would lead the medical public to suppose that we do operate during shock.

Dr. THORNTON had used chloroform many times, and seen it employed many times, without any fatal result. He does not think that pyæmia is ever induced, but that this special fatal termination alluded to by Mr. Wyatt depended more on the general scorbutic constitution of the men.

Dr. MOUAT begged to reply. He believed that it was the custom of all debating societies to adhere strictly to the question at issue. In the present instance, just what he had anticipated had occurred; the real question had been lost sight of, and had merged into the administration of chloroform generally. Some members of the Society had quite misapprehended his meaning in supposing he could be guilty of departing from such an obvious acknowledged maxim as non-interference during the immediate shock of a severe wound. He was much obliged to Dr. McLeod and others for correcting any errors he might have fallen into, in the absence of books and authorities. The inference to be drawn from Dr. McLeod's remarks was, that we did not know how to administer chloroform, and he must therefore again refer him to the paper, which distinctly stated that it was administered in the usual way, in the recumbent posture, and with all the necessary precautions enjoined. The subject of the primary and secondary fatal cases had been alluded to, and he thought that the first part of the question could not be disputed. Patients did sometimes die under the influence of chloroform; he had adduced three or four cases which could not be contradicted. He had likewise introduced what he considered a somewhat new view of the subject, which had not been fairly replied to: he alluded to those cases in which patients "never fairly rallied," in which there was a continuous state of nausea, and the desire for food never returned, the patient sinking gradually, without any perfect reaction having been established. He considers that many such cases might fairly be termed "deaths from chloroform," although it might be difficult to separate and distinguish them. From what he had seen during this war, he felt no doubt of their existence. The real difference of opinion between himself and those gentlemen who advocated opposite views, was not so great as at first sight appeared. He was an advocate for the administration of chloroform, but not for its indiscriminate use. He was much obliged to Dr. Burke for kindly furnishing him with another case of death

from chloroform in support of his views, and was glad to find that he agreed with him in the propriety of not administering it in trivial accidents and injuries. The society likewise appeared to be with him on this point; indeed, plainly speaking, and independent of other considerations, it was impossible to administer chloroform in every case. After a general action, for instance, the unavoidable loss of time in each case would quite upset the notion that it could be always employed. Any one who had witnessed the numerous operations at the General Hospital must have been struck with the length of time it was often necessary to keep patients on the table to enable them to rally from the chloroform insensibility. He concluded by stating that it was impossible to follow every gentleman who had spoken on this subject, many had so entirely wandered away from it; but if he had omitted to answer any material question, on being reminded of it he should be perfectly ready to do so.

Dr. JESSOP thought that the amputation of a finger was a painful process, and required the administration of chloroform equally with amputation of the leg, and should by no means be considered one of the slight operations.

Dr. HUME proposed that the meeting should be adjourned, when, other members being present, the subject might be again discussed.

Dr. ROGERS proposed, and Dr. WILLIAMS seconded, a vote of thanks to the author of the paper.

A Mirror

OF THE PRACTICE OF MEDICINE AND SURGERY, IN THE HOSPITALS OF LONDON.

Nulla est alia pro certo noscendi via, nisi quam plurimas et morborum, et dissectionum historias, tam aliorum proprias, collectas habere et inter se comparare.—MORGAGNI *De Sed. et Caus. Morb.* lib. 14. Proœmium.

CHARING-CROSS HOSPITAL.

Cases of Punctured and Penetrating Wounds, in the Persons of the four Italians who were Stabbed in Rupert Street, on the 17th of April; and also of a Female who Stabbed Herself, on Two Occasions, with a Shoemaker's Knife. Complete Recovery of the Five Patients, without any Untoward Symptoms.

(Under the care of Mr. HANCOCK.)

THE diabolical attempt at assassination, so very recently occurring in Rupert-street, and which at the time so much occupied public attention, has, we are happy to say, ended in the complete and perfect recovery of the four Italians who were the subjects of the brutal attack. The cases which are subjoined speak for themselves. We have thought it as well to add a fifth—that of a female, belonging to the same category, who inflicted the wounds upon herself. As all of them possess features more

or less uniform, we shall confine our remarks principally to the first, and the most interesting.

Carlo Rouelli was stabbed in two places—in the axilla, and in the left hypochondrium. Mr. Hancock did not probe the wound in the latter position; but there can be no doubt, from its situation, the general appearance of the patient, and the symptoms, that the stomach was penetrated by the entrance of the instrument between the ninth and tenth ribs, passing through the diaphragm, and so into the upper portion of the greater curvature of the stomach. To this circumstance he is probably mainly indebted for his life; for the stomach being distended with food at the time of the injury, prevented the escape of its contents into the peritoneal cavity at this situation; whereas, had it been wounded at its lower portion, this would most assuredly have occurred, and death would have resulted. As it was, the hæmorrhage into the stomach produced vomiting, and thus emptying this viscus of its contents, caused it to collapse, and closed the wound. The bleeding ceased in consequence, and a chance of recovery by this proceeding was afforded. What further favoured this result, he was not allowed to lie down, but was propped up in bed, almost in the sitting posture, to prevent the escape of fluid from the stomach, whilst ice was given to allay thirst, as well as nourishment in small quantities at a time, to prevent that organ becoming distended. The wound in the axilla does not appear to have penetrated the chest; thus differing from the second case, in which the principal injury was the wound of the lung in either of the situations mentioned, perhaps in both. This must have been also a lesion in the third case, as evidenced by expectoration of blood; but here the constitutional disturbance was very slight, and the dyspnoea by no means urgent. Whereas, in the second case, this symptom was more severe, accompanied with pain on inspiration. In the fourth case, the wound had not penetrated the parietes of the chest; and, in the fifth, the details prove a penetration of the abdominal cavity over the tenth rib. The really remarkable peculiarity of all these cases, is that the wounds were principally effected over some portion of the thoracic parietes, even where the peritoneum was wounded, as in the first and last cases.

Penetrating wounds of the great cavities are usually regarded in military surgery as of grave importance according to the viscera wounded, and the treatment recommended is of the most active and energetic character, especially in wounds of the lung. Mr Hancock entertains views worthy the attention of surgeons in relation to these injuries. He has taught for years, in his lectures, that we ought to treat severe accidents *seriatim*, *ab initio*, and not wait for what is termed reaction or inflammation; that there is always a period or stage between the receipt of injury and the consequent collapse of the patient and inflammation, marked by irregular—sometimes tumultuous—symptoms of irritation, which ought to be regulated and controlled; and that by so doing we may keep within bounds or altogether arrest inflammation (as

a morbid action), and do away with the necessity for bleeding. The inflammation which succeeds an accident to a healthy person is due to a morbid condition of the nervous system and not to a blood or bloodvessel disease: the irritation or reaction which precedes this inflammation clearly proves this to be the case; and therefore our treatment should be at once directed towards quieting and soothing the nervous system—to anticipate inflammation rather than to subdue it and thus to maintain a healthy reparative process. Various authorities consider the great danger to be apprehended in these cases to be inflammation, and have directed bleeding and antiphlogistic treatment; they have laid it down as a rule that we should abstain from imprudent exhibitions of stimuli for the removal of the collapse consequent upon the injury. This doctrine is opposed to the experience of Mr. Hancock. In all severe accidents and injuries, it appears to him that there are two periods to dread—that of collapse, and that of inflammation: the patient will frequently sink from the first, if, from an absurd dread of inducing the second, we abstain from giving the necessary remedies. The treatment of the subjoined cases, based upon these views, proved their soundness, and was most satisfactory.

Wound of the Axilla and Left Hypochondrium; Scalp Wound at the Back of the Head; Severe Pain in the Left Hypochondriac and Left Iliac Regions, from a Kick.

CASE 1.—Carlo Rouelli, aged twenty-nine, a waiter, was admitted into Charing-cross Hospital, at nine o'clock in the evening of the 17th of April. He had received two stabs with a triangular-bladed instrument—one, just below the axilla, which appeared quite superficial; the other, in the left hypochondriac region, corresponding to the intercostal space between the ninth and tenth ribs; he had also a scalp wound at the back of his head. He was seen by Mr. Hancock at half-past ten o'clock, P.M. He then complained of agonizing pain in the left hypochondriac and right iliac regions, having been kicked in that situation during the scuffle. His face was pale, lead-coloured, and extremely anxious; lips bloodless; pulse scarcely to be felt; hands and feet cold; and his cries could be heard throughout the building. Shortly after admission, he vomited two or three ounces of pure bright blood, and afterwards a larger quantity of a dark colour, and apparently mixed with the contents of the stomach. To take thirty drops of tincture of opium and some brandy-and-water, to be repeated during the night as required. The pain and sickness continued, notwithstanding the opium was administered every hour until five A.M., when a drachm of the tincture of opium was given. About six o'clock the pain was relieved, the vomiting ceased, and soon afterwards the patient fell asleep.

April 18th.—Nine A.M.: Has slightly rallied. Skin warmer and somewhat moist; pulse quicker and fuller; pain diminished, but still severe; less anxiety. Tincture of opium, twenty minims every

four hours. To have ice, beef tea, and milk, but no solid food.—Nine P.M.: Complains of thirst; finds the ice very grateful; skin hot; pulse quick—small but wiry; has not vomited since the morning. Continue treatment.

10th.—Has passed a good night; less pain; pulse 80.

20th.—Bowels not having acted, a mild dose of castor oil was given; this produced two evacuations, after which the patient declared himself better. The tincture of opium to be repeated.

24th.—Has continued to improve; his countenance is more natural; skin perspiring; pulse 70; but slight tenderness remains on pressure. Two eggs and four ounces of brandy to be added to his diet.

26th.—Much better; scarcely any pain.

May 1st.—Not quite so well; has more pain; tongue furred; pulse 70; does not relish the brandy, which is consequently discontinued. Apply six leeches to right iliac region, and to take the following pills night and morning:—Blue pill, five grains; extract of opium, half a grain.

5th.—Is now better; mouth rather sore. To take the pill once daily, instead of twice.

16th.—Has progressed favourably until to-day. He has taken solid food for the last two or three days, and to-day complains of constipation and pain; the latter, however is not fixed, and appears to depend principally upon flatus. To have eight grains of compound aloes pill at bed-time; beef tea and fluid diet.

22nd.—Is much better, and may be considered convalescent.

Two Wounds of the Chest, and several Superficial Wounds of the Abdomen.

CASE 2.—Pietro Cluensa, aged forty-three, admitted on April 17th, 1856. He received a stab on the anterior part of the chest, opposite the tenth rib, and another more posteriorly, opposite the sixth intercostal space, besides several superficial wounds on the abdomen. Although complaining of pain, this patient persisted in sitting by Rouelli's bedside during the night. He was ordered thirty minims of tincture of opium in one ounce of camphor mixture, every four hours. Towards morning he was obliged to go to bed, complaining of severe pain on inspiration or turning in bed; breathing short; pulse 90; full, and somewhat hard and incompressible. To have two grains of calomel, one-sixth of a grain of tartar emetic, and a quarter of a grain of powdered opium, every second hour, in a pill. No. 2 diet; beef tea; warm fomentations. In the evening the pulse, though quick, was softer.

April 19th.—Tongue white and dry; complains of thirst; skin dry; pulse quick, small, but wiry; expectorates blood and rusty sputa not intimately mixed with mucus. To repeat the pill every fourth hour.

21st.—Expectoration thicker and more bronchial, contains less blood; respiration easier; cannot inspire deeply without pain; mercurial fœtor perceptible.

tible; gums but slightly affected. To repeat the pill night and morning.

24th.—Fully affected by the mercury; expectoration free from blood; complains of weakness. The pill to be omitted. To have a cathartic draught, and five grains of soap pill with opium at night. Two eggs and milk to be added to his diet.

26th.—Still suffers from pain when he inspires deeply, salivation continues; pulse small and weak. To have ten grains of chlorate of potass in an ounce of infusion of gentian, three times a day; and a gargle of biborate of soda.

28th.—Much the same. To take two tablespoonfuls of the following mixture three times a day: decoction of cinchona, ten ounces; carbonate of ammonia, half a drachm.

May 1st.—Better and stronger, but does not lose the pain opposite the wound. A blister to be applied.

5th.—Is much better, and able to walk about the wards; complaining of but little pain. From this date he continued to improve until the 18th of May, when he left the hospital cured.

Wound over the Ensiform Cartilage, one below the left Scapula; Wound in the Hand and two Stabs in the Left Arm.

CASE 3.—Carlo de Rudio, aged twenty-five; admitted on the 17th of April, 1856, with a superficial wound over the xyphoid cartilage, and another wound, about two inches below the inferior angle of the scapula on the left side. His right hand was cut, and he was stabbed in two places in his left arm.

This patient throughout complained but of slight difficulty of breathing, had but little constitutional disturbance, and was exceedingly cheerful. On the third day after admission, he expectorated a small quantity of blood, mixed with mucus, and he continued to do so for three days. The treatment was similar to that pursued in the last case, and he left the hospital quite well on the 2nd of May.

Wounds of the Right Arm and Right and Left Sides of the Chest.

CASE 4.—Francesco Rossi, aged thirty-three, admitted on the 17th of April, 1856, with a punctured wound of the right arm and right and left sides of the chest, between the fourth and fifth ribs. There was slight dyspnoea, but no blood in his sputa. His mouth was made slightly sore, and he left the hospital, cured, on the 26th of April.

Stab in the Arm; Cure: Wound of the Abdomen over the Tenth Rib, with a Shoemaker's Knife.

CASE 5.—M. A. M——, a married woman, was, some three months since, brought to the hospital, having stabbed herself in the arm; she soon, however, recovered.

On the 29th of April last, she was again admitted into the hospital, at eleven p.m., having stabbed herself opposite the cartilage of the tenth rib of the left side with a shoemaker's knife. Mr. Harvey,

of Bedford-street, first saw her, and he ascertained that the knife had glided by the rib, taking a direction downwards and inwards, having, as it appeared to him, entered the peritoneal cavity. He sent her to the hospital; she was then intoxicated, and would not answer any questions, but constantly called for water. She bore pressure well, except over the wound. Her face was pale, but not bloodless, nor anxious; pulse very small and weak; extremities cold. Had vomited before admission, but it could not be ascertained whether she had brought up any blood. The wound was closed, and the patient placed on that side; but she could not be prevailed upon to remain in that position. Warm bottles were placed to her feet, and thirty drops of laudanum with ammonia and camphor mixture given.

April 30th.—Vomiting has been very frequent; no blood. To take a drachm of tincture of opium immediately, and twenty drops every third or fourth, or even every hour, should the vomiting continue.—Nine p.m.: Vomited about half an hour after the drachm dose of laudanum, but not since. Has taken two twenty-drop doses; pulse quick, but small; skin warmer. Says she is easier, but complains of great tenderness over the wound, and more or less over the whole abdomen. To have milk, beef tea, and ice, but no solid food; calomel and powdered opium, one grain of each every fourth hour.

May 1st.—Lies on her back with her knees drawn up. Abdomen very tender on pressure; pulse small and quick; very thirsty; tongue white and dry. Has slept pretty well during the night, and does not suffer much pain, except when moved or pressed.

2nd.—Skin warm and perspiring; pulse slow and fuller; bowels acted of themselves; there is less tenderness; tongue moist, becoming influenced by the mercury. Repeat medicine.

4th.—Gums tender; pulse between 60 and 70; still complains of tenderness. Her bowels have acted twice, and she can lie without her knees being drawn up. Repeat the pill, night and morning.

From this date she continued to improve, and left the hospital, cured.

ST. MARY'S HOSPITAL.

Cases of Procidencia and Prolapsus Uteri, one of them associated with an old rupture of the Perinaeum successfully cured by Plastic Operations.

(Under the care of Mr. I. BAKER BROWN.)

WE have recently had the opportunity of witnessing several operations performed on women by Mr. I. B. Brown, for prolapsus of the uterus and bladder, and for partial and complete rupture of the perinaeum, in all of which, without a single exception, the success has been so marked, and withal the convalescence so rapid, that we present to-day some examples of the former, the last case given being associated with rupture of the perinaeum as far as the sphincter ani.

There are very few female complaints so painfully distressing, and which cause such a wretchedly miserable state of existence, as these displacements of the womb, more especially if associated with rupture of the perinæum. Great credit is due to Mr. Brown for the operation he has so successfully introduced to the notice of the profession to remedy these conditions, and which is emphatically deserving of the name of "Brown's operation." His operation for ruptured perinæum is now so well known, and has already been successfully practised by so many obstetric surgeons at the different London hospitals, that it is unnecessary here to enter into a description of it.

The special points to be observed in this operation, (after the horse-shoe denudation of mucous membrane has been effected,) are, in a few words, the quill suture, the division of the sphincter, the free use of opium, generous diet, and frequent catheterism. With regard to the second point, the division is not performed unless in cases of ruptured perinæum. Prolapsus of the uterus, without rupture of the perinæum, does not require it; in fact, the great success of the operation for the latter depends upon this—a most valuable point, overlooked by the venerable Roux. Moreover, the manner in which the quilled suture is applied is another very essential matter. We have seen M. Roux perform this operation, and, on contrasting it with that of Mr. Brown, the material difference is the depth at which the latter gentleman passes his sutures, as compared with that of the former. This would not, perhaps, strike any one who has not witnessed the operation by both surgeons. We know for a fact that M. Roux did not divide the sphincter, and the credit of this very great improvement is solely due to Mr. Brown.

In the following cases, which we had the opportunity of examining on several occasions, the new perinæum formed by the plastic operation was thick, strong, and firm, feeling like a distinct bridge or arch reversed, and as if a transverse muscle had been formed. This condition, with proper firmness, is nevertheless yielding; subsequent gestation has proved this, without the apprehension of a fresh rupture.

The third case, one of prolapsus, was associated with a ruptured perinæum, which extended up to, but not through the sphincter; she was consequently predisposed to prolapsus. In the majority of cases where children have been born, this condition is generally a result sooner or later of the rupture.

Procidentia Uteri: Plastic Operation; Cure.

Julia L—, aged twenty-one, single, admitted on February 29th, 1856. She has had no child, abortion, or miscarriage, but admits having had intercourse. Three years ago she was perfectly well, but about that time she lifted a very heavy weight, and strained herself. The accident happened while at her occupation of ribbon-weaving. Immediately afterwards pain and bearing-down came on, and a leucorrhœal discharge, from which she habitually suffered, was very much aggravated,

and at the end of a week the womb came suddenly through the os externum whilst she was walking. Since then the womb has always protruded upon assuming the upright posture and during defecation. She can return it when lying down, but it does not recede without manipulation. Leucorrhœa has persisted from the date of the protrusion. The catamenia occur every month, but the discharge is excessive in quantity, and lasts for seven days.

Present condition.—The patient is fleshy, and apparently in good general health. Has enlarged tonsils. The uterus protrudes completely; it is larger than natural; the os is abraded. The perinæum is very narrow, but whether congenitally so, or in consequence of continual pressure having produced absorption, does not appear. Has slight leucorrhœa; her voice is husky; has had syphilitic ulceration.

On the 3rd of March, Mr. Brown performed his usual operation of denudation of the mucous membrane within the lips of the vagina, consisting of a piece an inch long and three-quarters wide, the upper edge of which was on a level with the meatus urinarius, and dissected off longitudinally. Then the mucous membrane was dissected off laterally and posteriorly in the shape of a horse-shoe, the upper edge of the shoe commencing half an inch below the lateral points of denudation. Two deep quilled sutures were then introduced, and, when the parts were brought together, the edges of the new perinæum were united by interrupted sutures. Two grains of opium were ordered on recovery from the effects of the chloroform, and one grain every four hours. As there was more hæmorrhage than usual, ice was placed in the vagina, which staunched the bleeding for a time; it was, however, effectually checked by gallic acid, tincture of opium, and camphor mixture. There was some pain in the parts; the pulse was quiet and the skin cool, and the abdomen was free from pain.

On the fourth day, pain in the parts continued, as well as in the limbs, from her constrained position; she had passed a sleepless night, and had much sickness; her catamenia also appeared. These symptoms disappeared subsequently.

On the fifth day the deep sutures were removed, and a minute slough in the orifice of the tract of the anterior suture of the left side.

On the sixth day, the parts were evidently well united; she was now taking one grain of opium night and morning. With the exception of some swelling of the right labium, and a blush which spread towards the pubis, the parts were perfectly united by the twelfth day, some little irritation being complained of from the catheter and consequent pain.

She was discharged from the hospital on the 29th of April, and as her general health was not very good, she became an out-patient. At this time the uterus was still heavy, and somewhat low down; there was a little pain and bearing-down, and together with general treatment she was enjoined to avoid the erect posture as much as possible.

Procidentia of the Uterus and Bladder; Plastic Operation; Cure.

Emma H—, aged thirty-seven, was admitted into the Boynton ward, on the 1st of May, with procidentia uteri. Sixteen years ago she first began to complain of bearing-down; this was after giving birth to her second child. For eight years she suffered from leucorrhœa, menorrhagia, and increased bearing-down; and at the end of this period she first observed that the womb began to protrude from the vulva. The uterus has since that time fallen further out of the pelvis, until at last it formed a tumour between the thighs as large as a child's head, according to the patient's account. The discharge has increased with the prolapse; micturition is impeded when the uterus is down; she suffers very much from dragging pains. She is a laundress by occupation, and is unable to perform the work. Her general health is pretty good. She can return the uterus easily. Has never worn any instrument, and has never had any medical or surgical advice for her complaint. She has been in her present condition for the last three years. Menstruation is now scanty, and not quite so regular as formerly; has hardly any appetite, but is not dyspeptic, and has no intestinal disorder.

On examination, the os externum is found to be dilated into a huge pouch, through which the uterus protrudes. The os uteri is excoriated, and presents an ulcerated zone around the orifice. The epithelium of the vagina is very much hypertrophied, and is rough and scaly. After the usual preparation of an aperient and an injection, she was operated upon at one P.M. on the 7th of May, in the usual manner, and, as in the previous case, under the influence of chloroform. She had ice to suck. Ordered two grains of opium immediately after recovering consciousness, and one grain every four hours afterwards. The usual double-curved catheter and india-rubber bag were ordered to be worn.

21st.—Found her doing well; all the parts quite healed; the stitches in the lateral portions still remained.

28th.—There is a hard thick cushion forming the new perinæum. The operation has been perfectly successful in every way.

June 14th.—She has progressed most favourably, without a single untoward symptom, and is now up and walking about the ward quite well. She was discharged two or three days afterwards.

Prolapsus of the Uterus and Bladder, with Ruptured Perinæum; Plastic Operation; Cure.

Esther C—, aged fifty years, a married woman, was admitted into Boynton ward on the 17th of May, suffering from prolapsus of the uterus and bladder. Four years ago she was delivered of her tenth child; she described it as a tedious labour, lasting from three o'clock in the morning till seven at night; she was attended by a woman; it was a cross-birth, and the child was born. The

womb protruded from the vagina, which so disconcerted the midwife, that she sent for a medical man, who placed the patient on her knees, and pushed back the womb; he had also to detach the placenta. Whether this was done before reduction of the protruded womb or not, the patient is uncertain, but there was considerable hæmorrhage after the child was born. Since that time she has been unable to follow her occupation as a charwoman, and can work at no employment unless in the sitting posture. The catamenia have been quite regular up to the present time; she has suffered from a dark yellow discharge for the last twelve months. The uterus began to prolapse on first getting about after her confinement; the prolapsus has gradually increased month by month on the slightest exertion, and protrudes from the vagina. When confined of her first child, she ruptured her perinæum up to the sphincter, but not through the muscle, consequently she has never had a full perinæum.

Present condition.—Middle stature; of well-developed muscular frame. The uterus constantly protrudes, even in the recumbent posture, but can be returned by manipulation. It is rough and scaly, the epithelium being hardened. She cannot micturate when the uterus is down, having to push it up to do so, as well as the bladder, which is also prolapsed. Is habitually constipated. The uterus, when down, is about the size of a swan's egg, and the os is excoriated. The cicatrix of the former rupture of the perinæum is quite visible, but complete union did not take place.

She was ordered aperient medicine on the 27th, and on the 28th of May, Mr. Brown proceeded to perform his usual operation as in the two previous instances, and a firm perinæum was obtained, the parts being well brought together. Two grains of opium were given immediately after, and one grain every four hours.

29th.—Has had a tolerable night, free from sickness; pulse natural; tongue white and dry, and skin dry.

31st.—Deep sutures removed; parts look healthy; tongue coated; pulse rather quick; complains of no pain.

June 1st.—Interrupted sutures removed; bowels opened by an enema, an aperient draught previously administered not having operated.

4th.—Slight attack of diarrhoea.

15th.—The parts are soundly healed, and she is improving daily in health.

ST. BARTHOLOMEW'S HOSPITAL.

Fibro-Nucleated Tumour of the Abdomen of Fourteen years' growth; Removal.

(Under the care of Mr. PAGEY).

AMONGST the great variety of growths which present themselves in various parts of the body, there is one form which is looked upon as interesting from its very rare occurrence, and from its occupying a position midway between innocent and malignant. It was first described by Dr.

Hughes Bennett in his work on Cancerous and Cancroid Growths, and received from him the name of fibro-nucleated tumour. Several drawings of the microscopic characters of this form of tumour are given in his work; they consist of filaments infiltrated with oval nuclei, and he considers there is no means of distinguishing it, except by a microscopic examination. "A detailed history of these growths cannot be drawn up from the materials in our possession. It would seem that they grow more or less rapidly, and, if excised, may return in the place originally affected. I am not aware that they ever occur secondarily in the glands or other organs."—p. 177.

Mr. Paget believes a very near affinity will yet be proved between this form of tumour and the recurring fibroid tumour; the general characters of the former, he observes, are repetitions of those belonging to the recurring fibroid tumours; the microscopic are not, and yet the difference of structure is such as may consist with a very near natural relationship. In his "Lectures on Surgical Pathology," he says—"For, as we have seen, both cells tending to elongate and attenuate themselves into filaments, and nuclei imbedded in a simple or filamentous blastema, are equally forms through which fibro-cellular or fibrous-tissue may be developed. And thus it may be that, in these two groups of tumours, the similarly contrasted forms of elemental structure may be nearly related, in that both alike represent persistently imperfect developments of fibrous masses."

The diagnosis of these tumours, then, depends upon the evidence furnished by the microscope, which may be of more or less importance, as they are looked upon as semi or locally malignant, or to use another expression, less malignant than cancer.

The patient, John W——, was admitted into Kenton's ward, March 26th, 1856. Is twenty-seven years of age. He has had a growth on the abdomen, just below the umbilicus, for fourteen years, which had its origin in an injury to the front of the abdomen from a cart-wheel, but which he attributes to a pinch of the skin. There is no other fact in the history to account for its presence. He has suffered great inconvenience from its situation. Within the last two years the surface began to ulcerate, and the tumour has attained the size of a large flattened orange, with the superficially ulcerated appearance which it now presents. There are a number of distinct tubercles on its surface and around it, which are quite distinct from the tumour itself. There is no hereditary cancerous or other disease in his family. Considering the period of its duration, fourteen years, the probability is, as Mr. Paget remarked, that it is not cancer, but a tumour of a rare kind.

On March 29th the man was given chloroform, when Mr. Paget removed the growth by making a large semicircular incision above and below it, and dissecting it off the sheath of the rectus, thus leaving a pretty large raw surface behind, a number of vessels requiring to be tied.

On making a section of the tumour, he observed

that it possessed a well marked fibrous character, formed, most probably, of imperfect fibro-cellular tissue, nothing very characteristic, but very similar to the growth he removed from a boy five years ago, which had existed for six years. In that instance, the tumour formed an oval swelling, about three inches and a half in diameter, on the palmar aspect of the forearm, which had followed a slight wound he received when two years of age. Under the microscope, the tumour was found to be composed of two materials—nuclei, and a sparing granular or molecular substance in which they were imbedded. These characters were found to be present in the tumour from this man, thus showing their identity with each other.

April 17th.—The surface of the wound is cicatrizing over; oil dressing was used for the first three days, and water dressing afterwards, and he is going on as well as can be desired.

May 5th.—The large wound has almost entirely cicatrized, and the man's general health has continued perfect.

12th.—The wound has healed, the cicatrix is healthy. A few days afterwards he left the hospital.

In the three cases described by Dr. Bennett, the tumours were situated in the left thigh, nearly in front of the great trochanter: in the parotid gland; and in the humerus. They exhibit the progress of these fibro-nucleated growths, from the hard nodule at their commencement, to the period of softening and disintegration.

ST. THOMAS'S HOSPITAL.

Suppurative Pericarditis and Pneumonia, apparently consequent upon the intrusion of a foreign body.

(Under the care of Mr. LE GROS CLARK.)

WOUNDS of the heart generally prove fatal from the hæmorrhage they produce, although the patient may live for a few days. Of twenty-nine cases of wounds of this organ, collected by Oliver and Sanson, only two are said to have proved fatal within forty-eight hours. Instances are recorded in which stabs or musket-wounds of this organ in man and animals are said to have healed, and no untoward consequences have resulted. It admits of great doubt, whether the heart itself was really wounded in these cases of recovery: the probability is that the pericardium may have been the seat of injury, and, from the situation of the wound, the heart may have got the credit for what was due to this membrane. In a former "Mirror," we gave an instance of punctured wound of the pericardium, under the care of Mr. Erichsen, at University College, where recovery took place. The case may be familiar to the minds of our readers, as the trial of the girl who committed the act appeared in most of the public journals at the time.

The annexed case, the notes of which were taken by Mr. Walker, the dresser of the patient, is supposed to depend upon the wound of the pericar-

dium by some foreign body, such as pin or needle, and we see no reason to doubt that such was the fact. It produced inflammation of this membrane and suppuration within the sac, with extension of the inflammation to the pleura and lung, under which the child sunk. At the autopsy the pericardium was found adherent to the sternum and costal cartilages, and the external fistula was found to lead into the sac. The foreign body could not be found; but when we remember how difficult it is to discover so minute a substance as a pin or needle in organic matter, this need not surprise us. The only wonder is that injuries of this character are not more frequent, as it is a very common circumstance, in almost every family, for children at times to swallow a pin; we can call several instances to mind. If they reach the stomach, the probability is that they are sometimes slowly dissolved by the action of the acids of that organ; at other times they make their way to some part of the body, where at a later day they may prove the source of much mischief.

Catherine W—, aged eight years, was admitted into Dorcas ward, on February 29th, 1856. She has usually enjoyed good health. On the 13th of February, while playing with another child, she fell against the stairs, and afterwards complained of her side. Her mother took her to a chemist, but being unable to pay him, he declined doing anything, and she was brought to the hospital. Mr. Clark being there at the time, he examined the child, and found a foreign body, supposed to be a pin or needle, underneath the skin, which it elevated over its point at each beat of the heart. It was situated directly over the pericardium, being between the fourth and fifth ribs, and about opposite the junction of the bone and cartilage. He made a small incision through the skin, with the view of extracting it; but from the crying and struggling of the child, he was unable to do so, and as it was continually moving about, it soon moved altogether out of reach. She was then ordered to have a poultice over the wound. After this she was brought to the surgery; and, on one occasion, something was seen under the skin, as at first, but about a quarter of an inch higher up. On account of the incessant crying and struggling of the child when touched, nothing was done; and two days before admission, an opening formed spontaneously where the foreign body was last seen. There is no history of the child ever having swallowed a pin or needle. On admission the child was weak and emaciated; face pale and pasty; the openings discharging about half a pint of matter daily; pulse 110, feeble, but quite regular; bowels regular, appetite bad. She does not seem to suffer much, and is generally quiet, except when disturbed.

March 1st.—Mr. Clark divided the portion of skin between the two openings; but, after a careful search, nothing was found. The wound continues discharging as much as ever, the matter coming from the bottom of the wound almost continuously, and not varied by the action of the heart, or by expiration. Poultices to be continued,

and search to be made to see if anything comes away with the discharge. Ordered, half a grain of quinine, with syrup of orange-peel, and infusion of roses, twice a day. To have arrow-root, beef-tea, and two ounces of wine.

2nd.—Much the same. Wine increased to four ounces; one egg.

4th.—Wound discharging as much as ever. She was sick to-day, after eating a small piece of meat; face somewhat puffy and oedematous; lips livid and congested; pulse 115, feeble, but regular. Mr. Clark suspected that the pericardium was affected, and that the matter was coming away from it. Wine increased to six ounces.

7th.—Mr. Clapton examined her chest very carefully, and found dulness on percussion on the left side, below the wound, and posteriorly and laterally, where there was large and irregular crepitation. There was dulness under the clavicle; the vocal resonance was much increased; and the lung was still permeated by a considerable quantity of air. Right lung resonant on percussion; breath-sounds exaggerated; she is breathing quickly, but not laboriously, and can bear to be raised in bed. She has some cough now, which has come on since she came in, but no expectoration; does not complain of pain. Heart-sounds are healthy, and its action regular, but feeble; pulse 115; the dulness on percussion over the cardiac region does not extend further than natural on the right side; on the left it is continuous with the dulness over the left lung.

10th.—Dr. Peacock examined the chest to-day, and found the heart-sounds natural. The wound discharges as much as ever; she takes her wine and beef-tea, but is thinner and feebler than on admission, and sleeps a good deal.

11th.—One p.m.: The wound ceased discharging this morning, and she has taken nothing to eat or drink during the day. Breathing quick and short; pulse very quick and feeble; face pale and anxious; she takes little notice of anything, except when spoken to, and cries when touched. She is evidently moribund. Four p.m.: She died quietly, without any alteration of the symptoms.

Autopsy.—On the following morning the chest was opened, and both lungs, together with the heart, were removed, and careful search was made in the intercostal spaces and neighbouring parts, but no foreign body was found.—Heart: The pericardium was found adherent to the sternum and costal cartilages, and a probe passed obliquely from the external wound into its cavity; it contained three or four ounces of pus, and was considerably thickened; both its visceral and parietal portions were roughened, but there were no adhesions between the two. On cutting into the heart, it was found healthy internally.—Lungs: Left pleural cavity contained half a pint of turbid serum, with lymph floating in it; the surface of the lung was covered with a thickish coating of straw-coloured tenacious lymph; the opposite surfaces of the pleura were nowhere adherent. The lung itself was solid, containing no air whatever; it was of a darkish-red colour, and broke down readily

under pressure; it was somewhat diminished in bulk; the right lung exhibited slight traces of inflammation. All the parts were cut up into pieces, and careful search made for a foreign body, but without any being discovered.

KING'S COLLEGE HOSPITAL.

Severe Laceration of the Left Foot from the Machinery of a Wind-mill; Good Effects of Conservative Surgery.

(Under the care of Mr. FERGUSON).

THE following case is an interesting example of the good effects of conservative surgery, in which a large portion of the outer part of the left foot was literally ground up by entanglement in machinery, and the foot was preserved. In such instances as these the usual recourse was amputation, but at the present day such a proceeding is not thought of until other measures adopted for the preservation of as much of the foot as possible have failed. The soft structures here were very much bruised, and many of the bones of the foot broken in several pieces; these were mostly removed. After sloughing of some pretty large portions of tissue, healthy suppuration set in, and a steady progression towards cure followed, with the fortunate possession of a really useful foot. It is a matter for much congratulation at this time to witness the praiseworthy efforts that are being made by all our hospital surgeons to save as much as possible, and spare the use of the knife. We intend shortly to commence a series of such cases from different hospitals, amply illustrating the good effects of conservative surgery; in truth, it may be justly said that the present time is the "conservative era" in surgical science.

William V—, aged eighteen, admitted March 17th into No. 1 ward, with severe laceration of the left foot. He is a miller's apprentice, and works at Maldon, in Essex. A week before admission, when at work in the windmill, his foot became entangled in the machinery, and was severely and slowly crushed, as he could not disengage his foot until the boot was torn off. He was seen by two surgeons after the accident, by whom some vessels were tied, and some portions of bone removed. A week after the accident he was brought up to town in an invalid carriage, and admitted under Mr. Fergusson. On admission, it was found that the outer half or more, of the left foot had been most severely crushed, the soft tissues being nearly destroyed, and the metatarsal bones broken and projecting. The toes had escaped injury in great measure, and the mischief did not appear to extend to the ankle-joint. There was no suppuration in the wound, which was excessively painful, having been aggravated by the motion of the railway carriage. A yeast poultice was applied, and the weight of the toes supported by means of a sling. Poulticing was continued until the sloughs, which were of considerable size, separated, and suppuration fully established. The patient's health being considerably shaken, he was ordered liberal diet and six

ounces of brandy, under which treatment he rapidly improved.

April 5th.—Considerable pain was felt below the inner malleolus, where matter was evident, but not implicating the joint. An opening was made into it, and a quantity of pus evacuated. The surface of the sore is healthy, and the edges beginning to cicatrize. Pain prevents sleep, unless induced by a night draught; the patient's health otherwise is satisfactory.

14th.—Everything going on favourably. The abscess has nearly filled up; wound very healthy, and filling up by granulation. The two outer toes are regaining sensation. Wound dressed with red wash.

21st.—A small piece of the metatarsal bone of the little toe, which had been projecting since the accident, became loose, and came away to-day. Wound rapidly cicatrizing. As the red lotion seemed too stimulating, the lead lotion was substituted.

29th.—The wound continues to heal up fast; foot swung on a Salter's swing.

May 1st.—Cicatrization going on rapidly. He is able to move his toes pretty well when resting on his heel, and there appears to be every probability of his having a useful foot and making an excellent recovery.

17th.—Cicatrization is now complete, and a very useful foot has been preserved, with the use of the toes. He to-day left the hospital.

Sebaceous Tumours of the Scalp; one of the Size of an Orange existing Twenty Years; Removal.

(Under the care of Mr. BOWMAN.)

Obstruction of the excretory duct of the sebaceous glands gives rise to the formation of encysted tumours, which include the various forms known as atheromatous which are met with on the surface of the body, especially upon the scalp, face, neck, or back. They vary in size and number, and in consistence. In former "Mirrors" we recorded examples where they, in one instance at this hospital under Mr. Bowman's care, covered the entire body, constituting the rare disease known as molluscum; and in another, under Mr. Erichsen at University College Hospital, where several were removed from the scalp. The accompanying case was one of the latter, where the growth of the tumour was slow and remained stationary for many years, until it became a source of annoyance, and its removal was sought for.

The patient was an elderly man, with a large sebaceous tumour, on the very top of the scalp, the size of an orange; it had been growing twenty years; its surface was quite bare and free from hair. Towards the left of this were two others, the size of marbles, of more recent growth; making three all together. Chloroform was given on the 17th of May, when Mr. Bowman made a section of each, transfixing them with a long-bladed scalpel and cutting upwards, and with a pair of forceps enucleating the cysts with the utmost facility. The large tumour was a little soft in its interior, and

possessed, as well as the other two, the usual white atheromatous character. It had distended the skin and had become almost pedunculated; and although the skin was very thin, it had not become firmly adherent.

Mr. Bowman remarked to the pupils that these tumours, developed in the sebaceous glands of the head, are always situated external to the occipitofrontalis muscle, and their removal was seldom attended with any danger, but sometimes erysipelas sets in.

The covering of these tumours contracted, as is usually the case, and healed up in a remarkably short space of time.

LONDON HOSPITAL.

Cases of Sciatica, Treated Principally by Cupping and Tonics.

(Under the care of Dr. SEPTIMUS GIBBON.)

THE causes which are said to produce sciatica are very numerous indeed, and oftentimes require no ordinary amount of skill on the part of the physician to detect the true one. This not unfrequently leads to the most varied and opposite treatment, and accordingly we find a great diversity of opinion prevailing amongst writers as to the remedies which ought to be employed in this affection. This has been clearly shown by Mr. Hancock in a former volume of this journal. He thinks the most common cause of sciatica is the irritation of the nerve within the pelvis, either from a loaded colon or cæcum, or from tumours formed within that cavity, and acting mechanically upon the nerve in that situation. There can be no doubt whatever that the state of the bowels is perhaps the most common cause within the pelvis. Sometimes, however, this condition is associated with a disordered state of the kidney, and when treated by turpentine, yields very speedily, from its influence upon this organ. Amongst the poor and lower orders of society, again, who are exposed to privation, cold, damp, and moisture, sciatica depends most generally upon an inflammatory condition of the nerve or its sheath, and from the low state of health met with in such persons, local depletion with tonic treatment, proves very beneficial. It is this last form of sciatica to which we would draw attention in our "Mirror" of today, which is illustrated by several cases, in which the treatment was tolerably successful.

We cannot refrain from adverting, while upon this subject, to the revival, a few years ago, by M. Malgaigne, of a remedy in popular use in Corsica—namely, the application of the actual cautery to the tip of the ear. Upon what principle the cure is effected here we are at a loss to determine, but several reported successful cases were given in the French journals at the time. We rather suspect the remedy had the effect of frightening away the pain.

CASE 1.—*Double Sciatica, arising from sleeping in damp sheets; treatment by cupping solely.*—Thomas B—, aged twenty-two, a healthy-looking lad, of light, florid complexion, was carried up

into Harrison ward, on the 17th of March, 1856. His skin was cool; pulse 105, moderate volume, and compressible; tongue was clean; bowels opened regularly once a day. He complained piteously of paroxysms of severe lancinating pain down the backs of both legs, extending from the buttocks to the ankles. He had no spasm or cramp of the legs, but was unable to move them, on account of the pain which followed the least motion. There was marked tenderness over the ischiatic notches extending over the course of the sciatic nerve in the middle of each thigh. He was unable to sleep without taking opiates.

The history he gave of his complaint was, that two weeks ago, after sleeping in damp sheets, this severe pain came on, and quite incapacitated him from following his employment as a grocer's assistant. He has since almost entirely kept his bed, and, under medical advice, applied many remedies, with temporary relief to the pain.

Dr. Gibbon, judging that the pain depended upon an inflammatory condition of the nerve or its sheath, ordered twelve ounces of blood to be taken by cupping over the most tender parts of both nerves. No other remedies were given. The blood was drawn from the integuments over the sciatic notches, with a very marked and almost magical relief to the pain. To have middle diet.

March 22nd.—Feels great weakness in his legs; is scarcely able to walk; has slight pain, without tenderness, extending from both knees to the ankles; general health good. Ordered to have a mustard foot-bath every night.

29th.—Able to walk well; no pain or tenderness about the hips and thighs, but slight pain continues to lancinate between the knees and ankles. To have two grains of quinine thrice daily, and turpentine liniment to be rubbed into the painful parts.

April 7th.—The pain continues, but is so slight as to be scarce worth mentioning. Discharged at his own request.

CASE 2.—*Sciatica and Lumbago, arising from damp and cold; treatment by iodide of potassium and steel.*—David B—, aged fifty-six, by occupation a coalwhipper, admitted on the 18th of March, 1856; is a stout, healthy-looking man; skin natural; pulse 84, moderate volume; tongue thinly furred; abdomen soft and natural; sleeps indifferently, owing to pain in left hip; appetite good; thirsty; complains of pain across the loins, which is very acute on motion; there is considerable tenderness on left side of the sacrum, and he complains of frequent lancinating pain, extending along the course of the sciatic nerve as far as the toes.

History.—Of temperate habits. His occupation exposes him constantly to damp and cold. For the past nine weeks he has had twinges of pain across the loins. Ten days ago, the sciatic pain commenced, and has prevented his either sleeping or walking. Ordered, cupping to the extent of eight ounces over the left hip; a mixture of iodide of potassium (three grains) thrice a day; and middle diet.

March 19th.—The cupping relieved him. He has since continued free from the sciatic pain, and slept well last night.

26th.—Left leg continues very weak, so that he requires crutches to walk with. In other respects, he is nearly well.

April 2nd.—Power in left leg returning, but slowly. Bowels costive. Ordered, fifteen minims of muriated tincture of iron, and five minims of nitro-muriatic acid, in an ounce of infusion of calumba, three times a day, and a pint of porter; ten grains of compound colocynth pill on alternate nights.

23rd.—Quite free from pain, but is not able to walk well on account of weakness of left leg. Discharged.

CASE 3.—*Sciatica from cold, treated by cupping, quinine, and iron.*—William C—, aged sixty-one, a stout, not unhealthy-looking man, applied as an out-patient on account of a sharp darting pain down the back of the right leg. There was marked tenderness over the right sciatic notch. He stated that the pain causing lameness commenced suddenly a fortnight ago. In his daily occupation as a brewer, he was exposed to great vicissitudes of temperature, but he unhesitatingly assigned his illness to having sat a considerable time at stool on a cold and windy privy. Ordered, cupping to eight ounces over the right hip, and a pill, three times a day, of two grains of quinine, one grain of sulphate of iron, and a sufficiency of extract of conium.

April 16th.—By mistake he was cupped over the loins. The pain continues very acute, especially on first rising in the morning. He sleeps well. To have a hip-bath on alternate days, and a liniment of opium to be rubbed over the right hip and thigh, morning and evening.

19th.—No improvement. To be cupped to four ounces over the most tender part of the right hip. The pills were continued.

23rd.—The cupping has afforded marked relief; and he is very much better. To go on with the pills.

27th.—Very little pain in the course of the ischiatic nerve. Pills to be continued.

May 3rd.—Discharged cured.

CASE 4.—*Sciatica and Rheumatic Fever, treated by cupping and colchicum.*—Margaret K—, aged forty, admitted on April 12th, 1856, from the out-patients' room, on account of the severity of the pain and her inability to walk. She complained of excruciating pain in the course of the left sciatic nerve, extending as far as the ankle; this pain recurred in paroxysms, or was excited by movement of the limb. There was considerable tenderness in the track of the left sciatic nerve to the commencement of the lower third of the thigh. There was rheumatic swelling of all the large joints of the right arm, with marked febrile disturbances.

History.—Has had several attacks of rheumatic fever. The present attack commenced one week since, followed two days ago by the sciatic pain. Ordered, cupping to six ounces over the left thigh,

a saline mixture, with a drachm of the acetum colchici, and half a drachm of sulphate of magnesia, three times a day. Milk diet.

April 16th.—Great relief was afforded by the cupping, so that she was enabled to walk a few hours afterwards. Slight tenderness over the sciatic notch. Pulse 90; tongue thinly furred. Complaints of pain in the right shoulder joint. Bowels relaxed three or four times in the course of the day. Omit medicine.

19th.—Bowels became regular as soon as the colchicum mixture was discontinued; skin natural; pulse 84, full and soft; rigors; has slight pain in shoulder-joint; there is but trifling tenderness over the left sciatic notch. To have two grains of calomel, and one of opium at night.

23rd.—Sleeps well; no return of rheumatic pain in any joint; pulse 80; tongue clean; bowels regular; is able to walk about without feeling the least pain or inconvenience.

26th.—Discharged cured.

CASE 5.—*Sciatic and Facial Paralysis, induced by Salivation; treatment by cupping, quinine and iron, and iodide of potassium.*—Thomas W—, aged forty-six, a healthy-looking man, of fair complexion, came into the hospital on March 19th, 1856. His face was drawn to the right side; he was unable to close the left eye, or to compress the left side of his lips, but there was no impairment of sensation on the left side of his face. He had, moreover, but little use of the left leg. Skin natural; pulse 96, moderate volume; tongue protruded in a direct line, tremulous, indented at edges, moist, and thinly furred. He says that in masticating he occasionally bites the left cheek. Abdomen soft; bowels constipated; has partially lost the use of the left leg, but can raise it freely from the bed and flex it upon the thigh; has acute lancinating pain in the course of the left sciatic nerve. Every other night has severe throbbing pain on the left side of his head which almost deprives him of his senses. There is no tenderness of the scalp.

History.—A letter-carrier by occupation, of temperate habits, always enjoyed good health until five months ago, when he had an attack of orchitis in the left testicle, from a strain. He attended as an out-patient of this hospital; he was greatly benefited by the treatment, but enlargement of the organ continued, and mercurial ointment was applied to it. Severe salivation was quickly the result, followed by the paroxysms of hemicrania, with, as he states, a swelling over the left mastoid bone. In less than a week, without any fit or loss of consciousness, he discovered that his face was drawn to one side, and the severe darting pain in the left leg incapacitated him from moving it. He remembers to have had a similar pain down the back of the left leg four years ago. Ordered, full diet, and a pill of two grains of quinine, one grain of sulphate of iron, with a sufficient quantity of extract of conium, every four hours.

20th.—Pain is less acute down the leg, but he is unable to leave his bed. General health improving. There is some tenderness over left sciatic

notch. Ordered to be cupped to two ounces over the left hip. Continue pills.

26th.—Experienced relief from pain in left leg after being cupped; pain now is limited to the posterior tibial nerve. Pain has not returned to the left side of the head for the last three nights. Ordered a hip-bath, and an opium liniment to be rubbed into the leg night and morning. Repeat the pills.

April 2nd.—Suffers no pain whatever, except in left leg, after taking much exercise.

5th.—Facial paralysis continues, without any marked alteration. Ordered to omit the quinine pill, and to take five grains of iodide of potassium in an ounce of infusion of gentian three times a day.

16th.—No improvement in the palsy of face; in other respects he is quite well, except that the left leg is weak and painful after much exercise.

ST. GEORGE'S HOSPITAL.

Melanosis affecting both Groins, as well as other parts of the Body; Recurrence after removal six years ago by Mr. Lawrence; Removal a second time by Mr. Hewett; Malignant Form of the Disease; Present Recovery.

(Under the care of Mr. PRESIDENT HEWETT.)

ONE of the most singular, and at the same time one of the rarest of the heterologous formations is the melanotic, for the first correct account of which we are indebted to that distinguished man, Laennec, in 1806, in the *Bulletin de la Faculté de Médecine de Paris*. It has been carefully studied by many zealous pathologists since his time, both in this country and on the continent of Europe. Its consideration at all times possesses a painful interest in the mind of the surgeon, from its recognised fatality, even after surgical interference, the duration of life on the average being set down at two years. The almost certain recurrence of the disease after removal goes a great way to support the notion that it is essentially malignant—a view further supported by the opinion of most pathologists, who consider melanotic tumours analogous to common cancerous growths, with the pigment superadded. Notwithstanding this prevailing idea, however, a division of melanosis into two kinds has been made, we think with great propriety and good reason into benign and malignant—a division which is sanctioned by careful histological examination into the morphological elements of the disease. Thus, for example, we will find a tumour possessing the external characters of melanosis, which, on careful examination, turns out to be a simple and innocent structure, with the development of pigmentary matter throughout its tissue; this will be removed, and either no return of the disease takes place, or the patient may remain at least free from a return for a period of many years. Now, this form of melanosis is referred to by many men of great experience, who draw a wide distinction between it and the second form—a point of no small import-

ance in the diagnosis. We have heard Mr. Ferguson remark on the importance of being able to assure our patients in private practice that such a tumour was not malignant, or was malignant, and, according to the correct view taken by the surgeon, we believe a possible assurance can be given as to the return of the disease or not.

On the other hand, the malignant form of melanosis, which very justly may claim the significant name of "black cancer," is a very different structure altogether. The true elements of cancer are generally or mostly always present, infiltrated with black pigment. The form of cancer most commonly met with in this class, we might say always, is the encephaloid, any other variety of cancer constituting the exception. The melanotic matter is infiltrated throughout the entire mass, or is mostly confined to its outer layers, being sparsely deposited in some instances in its interior. Most of the cases recorded in the "Mirror" have been of this form.

To turn to the case which we have the pleasure of briefly recording to-day. It is one of those in which the disease is multiplied in various parts of the body, affecting the subcutaneous glands. We had hoped when witnessing the removal of some portions of the disease, after listening to the valuable remarks of Mr. Hewett, that there might be an absence of malignancy; but the microscope has pointed out the true nature of the malady, and relief is therefore only temporary. Nevertheless, we think most surgeons will admit the propriety, even in the malignant form, of an early and complete removal, which appears to offer the patient a chance of cure, more especially as at first the tumour may be benign, which if allowed to remain would degenerate into cancer. We do not believe, under any circumstances, that the mere removal hastens the fatal termination.

George K—, an elderly man, was admitted on the 9th of April. He had been an out-patient six weeks ago, with several large lumps in his groin. There was a large scar on his right flank, from which place, six years ago, he had a tumour removed by Mr. Lawrence. Besides a pretty large tumour in the right groin, a smaller one was present in the opposite groin; they existed in other parts of the body also, as in the left ham, in the posterior part of the same thigh, over the right and left sides of the thorax, in the axilla, &c. Some of these were simply subcutaneous, and were freely moveable; and their surfaces were discoloured of a bluish-black colour. Six months before his admission, Mr. Lawrence wanted him to enter Bartholomew's Hospital and get these glands in the groin removed, but he would not consent. When an out-patient, a consultation was held between Mr. Hewett and his colleagues, Mr. Caesar Hawkins, Mr. Tatum, Mr. Cutler, and others, and it was deemed prudent not to operate, and to leave the disease alone; the appearance of all these tumours about the body inclined him not to operate. The patient appeared again at the hospital, and stated he could not work at his trade, which was that of a grinder, and required the constant use of his

right leg; that he suffered great misery and severe pain in consequence, and would like them removed—at any rate, from the groin. His anxiety was extreme to have the operation performed, so that his life could be spared for eight months or a year, to make some little provision for his family. Under these circumstances, and as these tumours in the course of two weeks had increased considerably in size, Mr. Hewett, in consultation with his colleagues, consented to remove the diseased mass from the groin.

On the 1st of May chloroform was administered, when Mr. Hewett made a long incision over the whole length of the tumour, which was here much discoloured, and removed a large mass of affected glands, together with a quantity of loose tissue surrounding them. The tumour included the deep and superficial glands, and was situated immediately over the saphenous opening, the sheath of the common femoral vein underneath it being exposed, the tumour having absorbed the cribriform fascia. The dissection was performed with great care, and several small vessels were tied. Two or three small tumours were then removed from the opposite groin. On section, these tumours presented a dark-brownish colour, resembling somewhat coagulated blood.

In his remarks on this case, Mr. Hewett observed that he had told the patient of the danger of the operation itself, as was seen when removing the deeper glands when the femoral vessels were exposed; but still the poor man was anxious, notwithstanding, to get rid of them. He requested those present to bear in mind the history of the patient—their removal six years ago,—and he thought the disease must have been of the same character then as now, a brown-ochrish tissue on cutting into it—true melanosis. Sometimes it happens, he observed, that melanosis is not associated with malignant tissue; and if we can find cancer cells in the specimens removed, although these are not absolutely diagnostic, then are they malignant. There have been some cases published years ago, he said, where the eyeball was removed and the patient has remained well twenty or thirty years. In such cases the melanosis could not be combined with malignant tissue. If combined with encephaloid disease, then they are fatal. When these tumours are not malignant, it is owing to the infiltration of the black matter into some simple or benign tumour; hence the disease does not return.

May 15th.—Has been going on well since the operation; the wound has almost entirely healed. His general health is excellent, his pulse good, and his appearance is favourable. On microscopic examination, the tumours were found to be encephaloid disease, infiltrated with black matter. True cancer cells were found developed within the melanotic portion, and where this was not present the true encephaloid disease appeared. In other words, the tumours were examples of encephaloid disease infiltrated with this black deposit. A return of the disease, even within a short period, may therefore be expected.

June 5th.—The wounds have perfectly cicatrised, and the patient is on the eve of leaving the hospital. He has complained of severe pain in the head the last three or four days, accompanied by vomiting, which has been relieved by saline medicine, and now he is free from it.

MIDDLESEX HOSPITAL.

Enormous Malignant Disease of the Kidney in a Child; Enlargement of the Left Extremities; Death; Remarkable Condition of the Kidney found at the Autopsy, its Weight being thirty-one pounds.

(Under the care of Dr. HAWKINS.)

MEDULLARY CANCER, by far the most frequent malignant disease to which children are liable, does not appear to be of common occurrence as a primary affection of the kidney, and rarely acquires the size of the tumour here described. It is truly surprising that life should have been so prolonged, and that with so little pain or general distress; for up to September we see that the inconvenience to the patient was not sufficient to induce him to offer a complaint, and even at a later period the functions of digestion, assimilation, &c., were in no way disturbed. It is true that emaciation was, from the first, progressive, but this is entirely accounted for by the large quantity of nutritious matter taken into the system being appropriated to the development of the diseased growth. The case is one of many which show what an amount of pressure can be borne by almost any viscus when submitted gradually to its influence.

The time at which the disease originated must, of course, be a matter of conjecture. It is certainly unusual to find medullary cancer extending over a period of seven years; yet our knowledge of the fact that it is far from uncommon for its development to be arrested for a time, and that occasionally for a very considerable period, must preclude the idea of its congenital origin being looked upon as impossible.

For the notes of the following case we are indebted to the kindness of Mr. Barley Balding, surgical registrar to the hospital:—

J. B—, aged six years, admitted into the hospital on May 29th, 1855, under the care of Dr. Hawkins.

History.—Born of healthy parents; is one of a family of ten children, of which five are now living, the others having died of acute infantile diseases. When six weeks old, the mother noticed that both left extremities were larger than the right; the skin was looser, and the muscles she describes as being less firm than those of the opposite side. She was so struck with the difference that she consulted a medical man about it. At three years of age the child had whooping-cough, and shortly after the measles, but has never had scarlatina. The abdomen, the mother believes, has always been rather larger than could be considered natural, but this has not been to a marked extent. With these exceptions, the child had fair health till the

middle of April, 1855, (six weeks before admission,) when he was suddenly seized with sickness, and from his appearance the mother believed him to be very ill, and though far better on the following day, and so much so as to be able to walk out of the house, did not regain his appetite for about a week. During this illness the mother accidentally discovered the tumour in the upper part of the left side of the abdomen. It then appeared to be almost circular, and about two inches in diameter. It was not perceptible to the eye, but its lower margin could be distinctly felt; it was very hard, but not painful, nor did moderate pressure cause any inconvenience. She believes that it gradually increased in size after she first discovered it, till she brought the child to the hospital, and during this time she noticed that he had quite regained his appetite, which had, in fact, become voracious, and, though he appeared fatigued after moderate exercise, he was able to walk about without effort.

State on admission.—Rather emaciated; abdomen very much swollen, especially on the left side, where the veins are enlarged and tortuous; the left extremities are considerably larger than the right, owing to the soft parts being much firmer and the muscles apparently better developed; there is, however, no difference in length. Upon manipulation, a tumour can be felt, of somewhat globular form, about three inches in diameter, occupying part of the left hypochondriac, left lumbar, and umbilical regions; its lower margin is well defined, but its upper boundary cannot be ascertained; the dulness on percussion, which is complete over all parts of the tumour, being there continuous with that of the spleen. The patient eats, drinks, and sleeps well, is able to sit up the greater part of the day, walks frequently up and down-stairs, and does not complain of pain.

August 1st.—Since admission, the tumour has fast increased in size, and now extends half an inch below the umbilicus and about the same distance to the right of the mesian line; the abdomen generally is much more swollen, and the veins are much larger. The patient walks about the garden for an hour or two every day, and though taking a large quantity of food, and eating it very frequently, is daily becoming more emaciated. He appears to suffer no inconvenience, except that caused by the bulk of the tumour, the large size of the abdomen being such as to impede progression. He complains of thirst, and evinces a desire to drink frequently of cold water. The bowels act with regularity; and the urine, which is frequently voided, and in quantity rather above the natural standard, presents no abnormal appearances.

The patient continued to go about till September, and to walk up and down one flight of stairs to and from the ward without assistance. About the middle of the month, after having spent some time in the garden of the hospital, he found himself unable to get back, and was then, for the first time, carried up-stairs. After this he was almost constantly confined to his bed. The tumour gradually increased in size till his death; for some time previous to which indistinct fluctuation could be

detected in some parts of it. The abdomen, about the middle of December, measured in circumference thirty-six inches, and at the end of March, upwards of forty-two. For the last two months, he suffered much from dyspnoea; and, for the last three weeks, had constant orthopnoea, and daily increasing oedema of the left leg. His appetite, however, remained inordinate till the last; and the bowels, which had continued to act regularly till within a short time of his death, had recently become somewhat constipated. He sank gradually, and died April 7th, 1856.

The accompanying sketch is from a photograph taken by Mr. Heisch shortly after death:—



Post-mortem examination, fifty-four hours afterwards.—The whole of the abdomen, except the right inguinal region, was occupied by a large globular tumour, anteriorly firmly adherent to the parietes, and covered by peritoneum, posteriorly lying in contact with the psoas muscle; the small intestines were thrust down to the right inguinal region; the spleen and liver were driven upwards into the thorax; the whole of the transverse colon was firmly adherent to the tumour; and a portion of the descending colon, which ran along the front, was for a short distance imbedded in it. The tumour, when removed from the body, was found to weigh thirty-one pounds. Traces of kidney structure could be recognised as if spread out over the entire substance; large masses of medullary cancer were visible on its surface. Upon section, the centre was found to be occupied by several pints of dark thick fluid, floating in which were several fragments of the broken-down cancerous mass; the more solid portions varied in consistence from that of firm medullary cancer to gelatinous matter in a semi-fluid state, large masses of it being found in every stage of degeneration; the kidney on the opposite side was much enlarged. No cancerous deposit was found in any of the other viscera.

Reviews and Notices of Books.

Nomos: an Attempt to Demonstrate a Central Physical Law in Nature. Post 8vo. pp. 198. London: Longmans.

EVERY one at all acquainted with the present state of physical science must have often asked himself, What will be the end of the connexions and correlations which have been shown to exist between electricity, light, heat, and other physical agents? He must have speculated upon the possible discovery of a grand generalization which will comprehend all physical forces, even the force of gravitation. He must have fancied the existence of a general law, in which mathematicians, elec-

tricians, and chemists, must meet and join hands when their inquiries have been prosecuted to their legitimate conclusions. And, therefore, every one must be interested, more or less, in the attempt to show the possibility of this grand generalization and the reality of this common law. Now, such an attempt is made in the book before us, and the attempt, we are bound to say, does no discredit to the anonymous author.

In this book, then, the first object is to show "that the phenomena of electricity, magnetism, light, heat, chemical action, and motion, which are developed experimentally, and not to be understood unless they be regarded as signs of one and the same action in ordinary matter." This object is carried out in such a way as to bring before the reader all the great facts upon which the doctrine is based—the facts discovered by Davy, Ampère, Faraday, Graham, and others—and in the course of the inquiry several new and important results are brought to light. Amongst others, the repulsive power of heat and the mysterious properties of the magnet are explained *physically*, and electromagnetic rotation is accounted for without the intervention of a repellent force. We would gladly have entered into these questions, particularly into the last, where the demonstration appears to be most conclusive, but the want of space, as well as the want of the necessary diagrams, renders this impracticable.

The next object is to show that the law of which artificial electricity, magnetism, light, heat, chemical action and motion, are the signs and effects, and which is called provisionally *the law of the laboratory*, is the law which rules in the inorganic world.

In this part of the inquiry the author occupies himself, first of all, with the motions of the heavenly bodies, and shows—after analyzing the present scheme of celestial motion, and pointing out certain apparent difficulties in this scheme—that the orbital and axial motions must begin as well as continue if the heavenly bodies are obedient to the law which has been named provisionally *the law of the laboratory*. He points out the actual presence of all the necessary conditions, and shows that the motions of the heavenly bodies are the result of the same reactions which cause a conductor to move around a magnet or a magnet around a conductor, which reactions dispense with the idea of original projection, and refer everything to a simple power of attraction, acting in a manner the reality and necessity of which can be demonstrated by experiment. In this chapter there is some room for questioning; but we must allow that the arguments would be very cogent if they were not supported by any other kind of evidence, but that, flowing as they do out of the considerations stated in the first chapter, they are almost, if not altogether, conclusive. The explanation is indeed different, but the result is precisely as if the motion of the heavenly bodies were brought about by the original projection and the force of gravity, and thus the results of mathematical calculation are not affected by the theory.

The author next attempts to show that the law of inorganic nature is like the law of the laboratory in that *heat* is one of its signs, while at the same time the law of the laboratory is appealed to for the explanation of natural heat. If the law of inorganic nature be this law, the argument is that *heat must* be produced under certain circumstances. If the law of inorganic nature be the law of the laboratory, certain effects must follow which show that this is the case. The solar and inner rays, it is thought, *may* expand the land so long as the land is acted upon by these rays; and not only so, but they *may* be brought to a focus *within* the earth, by the lenticular action of the earth itself; and this lenticular action *may* further necessitate a fusion and expansion in the parts corresponding to the focus, which fusion and expansion shall cause a *permanent* bulging out of the land in the equatorial region, and a *transitory* bulging out of the land *beyond* the focus. And this theory, it is thought, is supported by several facts. The focal concentration of the solar and lunar rays within the earth is seen in the central heat of the earth—a phenomenon for which, as yet, there is no adequate explanation, and certainly none more satisfactory than this. The transitory expansion of the land on the side of the earth underneath the sun and moon, and on the side opposite to this, is shown in the phenomena of the tides; for these phenomena are found to be more intelligible on the supposition that the land alternately rises and falls in the waters in the manner which has been explained, than upon the supposition that the waters alternately rise and fall upon the land. The metamorphoses of comets are also thought to meet their explanation by supposing that cometary bodies are acted upon by the solar rays in the same manner as the earth. And lastly, certain unexplained passages in the past history of the earth are supposed to be confirmatory of these opinions; for it is supposed that the land may have been originally raised out of the waters, and that it is now kept out of the waters by the expansion consequent upon the focal concentration of the solar and lunar rays upon the earth. Nor is this a barren conclusion; for, if the land were raised in this manner, the land, it is supposed, must remain where it is so long as the sun and moon and earth remain in the same relative positions; and this conclusion is made the ground of an objection to the idea of repeated revolutions in the past history of the earth, the objection being that each revolution must involve some miraculous change in the position of the heavenly bodies. This objection leads to a geological inquiry, and the result of the inquiry is that the number of revolutions has been greatly exaggerated. These are the topics of this chapter, and this is all we can say upon them, except to express our opinion that the arguments of the author, to say the least, will not easily be set aside.

The three next chapters are merely short sketches, of which the object is to show, by hints rather than arguments, (for the proof rests upon the premises,) that the phenomena of "natural light and chemical action, and electricity and magnet-

ism, are only intelligible when they are regarded as sign of the same central law."

If our space had allowed it, we would gladly have said more upon these very interesting subjects; but these remarks must serve to give an idea of a book which is full of original thought from beginning to end, and which ought to be in the hands of every student of nature.

Edinburgh New Philosophical Journal. New Series. No. 7. Vol. IV., No. 1. July, 1856. Edited by Sir WILLIAM JARDINE and Professor ANDERSON and BALFOUR, for Scotland; and by HENRY DARWIN ROGERS, State Geologist of Pennsylvania, for America.

THE papers in the July number more particularly interesting in the department of our own sciences are these:—Dr. John Davy on certain sea-weeds of an edible kind; and Mr. Baxter on current electricity during vegetation. The Memoir of the late James Wilson, of Woodville, is interesting; and the Review of Mr. Hay's and Professor Zeising's Treatises on the "Science of Beauty," will be found one of the best, as a short and facile exposition of the question, we have yet met with.

Letters to a Young Physician just entering upon Practice. By JAMES JACKSON, M.D., LL.D. Fourth Edition. London: Sampson Low and Co. Boston: Phillips, Sampson, and Co. 8vo. pp. 344.

THIS is an American work, and has previously gone through three editions. The author briefly refers to some of the most important diseases which are likely to be met with in the ordinary practice of a physician, and, where necessary, introduces cases. He is evidently averse to the plan of bed-side case-taking, and considers that the most important points are more firmly retained by the memory without it.

In the treatment of rheumatic fever, after the first few days of the disease, Dr. Jackson strongly recommends the administration of the sulphate of quina, taken freely, as it is for intermittent fever. He believes that in many cases of hæmoptysis the blood is discharged through the exhalants, without any injury or disease of the lungs, and he relates a fatal case where nothing abnormal was found in these organs. In the treatment of boils, he strongly advises, as soon as they make their appearance, and when yet in the state of a pimple, that they should be incised directly through the centre; and if there is a succession of them, to give sulphate of quina. Dr. Watson, in his lectures, refers to the same plan of treatment; but the author claims priority, having used it some ten years before the appearance of Dr. Watson's lectures in print.

A Practical Treatise on Stammering, its Pathology, Predisposing, Exciting, and Proximate Causes, and its most Successful Mode of Cure Scientifically Explained. By J. H. AYRES POWELL, M.D., &c., pp. 50. London: Churchill.

A SHORT but clear exposition of the views of one long engaged in the treatment of this com-

mon and severe affliction. We can recommend the perusal of Dr. Poett's pamphlet, as it is quite free from quackery and *ad captandum* writing.

The Indian Annals of Medical Sciences—A Half-yearly Journal of Practical Medicine and Surgery. No. VI., April, 1856. Calcutta.

THERE are few professional serials which have taken so high a place in so short a space of time as our Indian contemporary has done. The present Number sustains its reputation. The elaborate Report on Febrifuges or Anteperiodics is here concluded; and there will be found also a short paper by Dr. Ebdon on a topic not often brought before the public, professional or lay, even of India, viz. Eunuchs. Mr. Waring—well known by his late monograph on abscess of the Liver,—has an article "On some of the diseases of India," in which, when alluding to *Beri-beri*, he remarks—

"I am far from wishing to set myself in opposition to any rational explanation of the history and pathology of this obscure disease; but if it be granular degeneration of the kidneys, as supposed by Dr. Ranking; or if it be simply scurvy, as suggested by Dr. Morehead, it is a very singular fact that its range should be so limited. With regard to the above morbid appearances, it is evident that they present no uniformity of condition, about equal numbers in each organ presenting some disease, or described as healthy or normal. Serous effusion is the only uniform appearance, and this existed in every fatal case."—p. 497.

Dr. Arthur's observations (652) "On the Internal Economy" of an Indian regiment, merit the deep consideration of both the out and home Administrations.

Foreign Department.

Typhus in the Crimea, as described by M. Baudens, Surgeon-in-Chief of the French Army.

M. BAUDENS has addressed a letter from Constantinople to the President of the Academy of Medicine of Paris, wherein he states that the typhus which reigned amongst the French troops is not identical with typhoid fever, notwithstanding a certain amount of analogy as to cause, periods, and sequelæ.

Typhus, as lately observed in the Crimea, is engendered by want, and crowding, either in prisons, hospitals, or on board vessels; the disease may, indeed, be called forth and removed at will. This is not the case with typhoid fever and other epidemics, as cholera, which, in spite of all precautions, break out suddenly and disappear without any appreciable cause. Typhus is propagated both by infection and contagion; the latter mode of transmission, which is doubted by some as to typhoid fever, is quite evident as to the Crimean typhus.

The difference between typhus and the generality of epidemics is, that the latter reign only temporarily, according to the duration of certain atmospheric influences, whilst typhus continues until the causes of infection have been removed.

The Crimean typhus has presented less regularity and uniformity in the succession of symptoms than the ordinary typhus described by Hildenbrand. This irregularity may be ascribed to various causes, amongst which should especially be noted scurvy, dysentery, and the intermittents, which were excited by the marshes of the valley of the Tchernaya. There were mostly no premonitory symptoms, as lassitude, sleeplessness, lumbar pains, horripilation, tension in the head, and vertigo, so common in typhoid fever. The Crimean typhus began at once by shivering, frontal cephalalgia, stupor, muttering or violent delirium, total prostration, more or less discharge from the eyes, the nares, or bronchi, intense thirst, and a foul state of the alimentary canal. The burning skin was covered in two or three days with an exanthematous eruption, different from that which is seen in typhoid fever, and presenting irregular groups of round spots of a dull red, smaller than a split pea, and not disappearing upon pressure with the finger. There were generally neither petechia nor sudamina. The fever proved continuous, with from 100 to 180 beats in a minute, but was interrupted by one, or sometimes two, regular paroxysms in the twenty-four hours, somewhat similar to fits of ague, which circumstance has given the Crimean fever a peculiar character. The abdomen was generally soft, painless, and without either tympanitis or that gurgling in the iliac fossa peculiar to typhoid fever. Instead of the diarrhoea which generally accompanies the latter affection, constipation was present in the Crimean fever, except in those cases where dysentery existed before the attack. The inflammatory period lasted five or six days, and was followed by cerebral symptoms of the ataxic and adynamic character. The latter lasted only four or five days, and were slight in the cases which recovered.

The short duration of this fever contracts strikingly with the length of time during which typhoid fever generally lasts. Death has often occurred on the third day, sometimes on the second, and even on the first. The latter were fearful cases. The fever continued rarely beyond the twelfth or fifteenth day, save when complications occurred, such as congestion of the viscera of any of the three splanchnic cavities. Convalescence almost always took place within the first ten days, the patient passing at once, as it were, from death to life. Coma and delirium left him as by magic, but sleep continued heavy, and there remained deafness, weakness of sight, and some loss of memory. No falling of hair, as happens after typhoid fever, was noticed. The favourable changes were often preceded by epistaxis, diaphoresis, critical urine, and sometimes mumps. Convalescence, which advances so slowly in typhoid fever, is rapid in typhus, and errors of diet have no unpleasant results. This is owing to the absence of inflammation of the intestinal follicles, and the non-congestive state of the mesenteric glands, the reverse being one of the principal characters of typhoid fever.

The liver and the spleen, in the Crimean typhus,

were often found gorged with blood, and softened; the lungs, when congested, were either clogged or hepatized; the meninges injected; opaline effusion in the arachnoid, sometimes with pseudo-membranous patches; cerebral surface dotted, softened, or presenting on its surface a layer of pus.

Treatment.—First, by pure air and powerful ventilation; non-interference with the inflammatory stage, as being an effort of nature to throw off the morbid poison by an exanthematous eruption; no bleeding, except in very robust subjects, and when cerebral apoplexy is threatening; leeches to the mastoid processes, or cupping between the shoulders, preferable to venesection; to have recourse to the same means when the smallness of the pulse points to an oppression of vital forces, which latter rise again after moderate depletion; to stop the intermittences which sometimes occur by quinine, in order to recall the continuity of the fever, which generally then gives way, when it is not kept up by an accidental organic lesion. At the outset, an emeto-cathartic is advantageous, when the primæ viæ are out of order; mucilaginous and acidulated drinks, and even wine-and-water. In the comatose stage, such remedies as are usually employed in adynamia and the ataxic state. In the latter circumstances, tonics and port or Malaga have proved very beneficial. The above treatment has been the most successful in the East, and the most experienced medical men have employed it with excellent results.

THE SANITARY CONDITION OF THE BRITISH ARMY IN THE CRIMEA.

FOR THE WEEK ENDING JUNE 7TH.

The Inspector-General of Hospitals states, that it is gratifying to observe the good health that is enjoyed by all. Only one death has occurred during the week in the Crimea, and no more than three in the whole army.

There is an increase in the ratio of admissions to strength, and in the proportions of sick to healthy, in the Crimea this week; but this is owing to the transfer of sick to general hospital on their embarkation by regiments, and not to any actual increase of disease in the army; and, after all, the ratios are low, as the admissions to strength in the Crimea amount only to 2.49 per cent; death to strength, 0.003; sick to healthy, 3.93 per cent.: and taking the whole army in Turkey, the admissions to strength do not exceed 2.38 per cent; death to strength, 0.006; sick to healthy, 4.34 per cent., which may fairly be assumed as a very satisfactory condition at this season of the year.

The weather was hot during the week, and there has been an increase of diarrhoea, but not to any considerable extent; and the second case of cholera, which occurred in the Royal Artillery, was mild, and all three are convalescent. There has been no other case in Balaklava since the man of the 44th Regiment was attacked after bathing in the sea; but it is worthy of remark, that the

second case in the Artillery occurred in Boothby's Small-Arm Brigade, where the first case was treated,—not that there was any connexion between them, as the first man was taken ill at the powder magazine, which is a detached part, distant fully a quarter of a mile from the camp of the brigade.

NOTE OF A CASE OF EPILEPSIA LARYNGEA, TREATED BY TRACHEOTOMY.

By MARSHALL HALL, M.D., F.R.S.

MEMBER OF THE INSTITUTE OF FRANCE, FOREIGN ASSOCIATE OF THE ACADEMY OF MEDICINE OF PARIS, ETC. ETC.

To the Editor of THE LANCET.

SIR,—I have just been witness to a scene which has much gratified me—that of the grateful expressions of a mother for the restoration of an only son from a state of epilepsy, mania, and idiocy, the effects of frightful seizures of *laryngeal* epilepsy, by tracheotomy.

The case will shortly be published in all its details by Dr. Ogle, of St. George's, to whom society is immediately indebted for this benefit. I can only send you a few brief particulars, communicated to me by the patient's mother, a poor washerwoman :

The patient, aged seventeen, became seized with epilepsy from fright *six* years ago.

The fits became gradually more and more frequent, and more and more severe, until about a year ago, when they recurred many times, indeed almost incessantly, every night, and frequently in the day, especially when the poor boy fell asleep, with blackness of the face, bitten tongue and bitten thumbs, convulsions, stupor, mania, idiocy.

On last Christmas day, and again on "Boxing day," it became necessary to put on the poor patient a straight waistcoat. It was next proposed to send him to a lunatic asylum. His fond mother, however retained him at home, passing a great part of every night in watching him, and restraining him from convulsive and maniacal violence.

Two months ago, tracheotomy was ably performed by Mr. Holmes, of Vigo-street. The relief was almost immediate; for a day or two the boy suffered from slighter fits; but from that time he has had no night fits, no "black" fits, no fit with bitten tongue and thumb, no convulsion, no loss of consciousness—nothing, in a word, except slight and transient faintness!

His mind is restored from its idiocy, his physical health and strength are improved, and there is now, for the first time in his life, the question of some useful occupation for him!

The tube is worn without pain or inconvenience. It is kept free from mucus, being managed entirely by the patient's mother. The patient himself places his finger on its orifice whenever he wishes to speak.

The poor mother's joy is extreme, and her expressions of gratitude know no bounds; and I confess that my own reward in having, by the sugges-

tion of tracheotomy in this special form of epilepsy, so far rescued a fellow-mortal from a state the most deplorable of mind and body, is of the highest kind.

I must add that the selection of the case for the operation by Dr. Ogle, who is paying special attention to the subject of epilepsy, was most judicious.

London, July, 1856.

ANOTHER VICTIM TO THE INDISCRIMINATE SALE OF POISONS.—A case has attracted much attention at Bolton, in which a flour-dealer named M'Mullen is reported to have died from taking tartarized antimony, administered by his wife. The drug was known at the chemists' by the name of "quietners," and is usually purchased by women who have drunken husbands, to cure them of the habit! Evidence was given at the coroner's inquiry proving that the deceased's wife administered certain doses of a white powder to her unfortunate husband on several occasions; and Mr. Watson, analytical chemist, stated that he examined the medicine and tea which had been given to the deceased, as also his liver and kidneys, and detected antimony in all of them. J. Rowland Simpson, druggist, said he was in the habit of selling emetic powders, composed of tartarized antimony and cream of tartar. The powders were sold at 1d. each, and he usually cautioned the purchaser to be careful with them, and to divide each into four doses. They were called "quietners." He did not remember that men ever purchased them. It was likewise proved that the deceased and the accused effected a joint insurance on their lives of £100, payable on the death of either to the survivor. The jury found that the death of deceased had been accelerated by antimony, wilfully administered by Betsy M'Mullen, his wife; and expressed their disapprobation of the indiscriminate dispensing of such medicines. The accused was then committed for trial at the assizes.

A MEDICAL PRACTITIONER DROWNED DURING THE INUNDATIONS IN FRANCE.—As Dr. Aragon, (of Bourg d'Oisans,) in the department of Isère, was returning home at night on May 29th last, from seeing his patients residing in the mountains, he was carried away by a powerful torrent and perished. His body had not been found two days after the catastrophe.

STRANGE JUSTICE.—In the Crown Court of the Midland Circuit, this week, before Mr. Justice Creswell, a fellow named William Boyden, *alias* Jackson, by trade "a quack," was charged and found guilty of the "manslaughter" of a married woman named Anne Read, by administering to her a mixture of lobelia inflata, in doses of five grains to a teaspoonful, the general rule of the profession being not to give over a grain to a dose. However, notwithstanding the culprit was found guilty of the wilful act, and that it had been proved he was in the habit of playing with the lives of her Majesty's subjects, the extraordinary sentence of *three months' imprisonment* was passed on him.

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Literature and News.

MR. WAKLEY, M.P., EDITOR.

J. HENRY BENNET, M.D., J. WAKLEY, JR., SUB-EDITORS.

IN TWO VOLUMES ANNUALLY.

VOL. II.

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No. 4.

A Course of Lectures ON THE THEORY AND PRACTICE OF OBSTETRICS.

By W. TYLER SMITH, M.D.,

PHYSICIAN-ACCOCUCHEUR TO ST. MARY'S HOSPITAL, AND LECTURER ON MIDWIFERY AND THE DISEASES OF WOMEN IN ST. MARY'S HOSPITAL MEDICAL SCHOOL.

LECTURE XXI.

THE MECHANISM OF LABOUR.

GENTLEMEN,—Great improvements in any department are commonly of slow growth. This may be said emphatically of our knowledge of the Mechanism of Labour, which, with the motor forces engaged in parturition, stand at the very foundations of the science and art of Obstetrics. More than a century ago, to the honour of the Dublin school of midwifery be it said, Sir Fielding Oulde called in question the opinion which had previously prevailed universally, that the head entered and passed through the pelvis in the direction in which it emerges—namely, the antero-posterior diameter. In his little work, published in 1741, he taught that the face of the child did not lie upon the sacrum of the mother, but was always, in natural cases, turned to one side or the other. He believed, however, that the chin of the child was turned towards one of the shoulders, the neck of the fœtus being partly rotated upon its body. This error respecting the different position of the fetal head and trunk, was corrected by Smellie, and the belief in the oblique position of the head in the pelvis gained ground amongst accoucheurs in different countries. In 1771, Saxtorph, of Copenhagen, and Solayres de Renhac, of Montpellier, published almost simultaneously the discovery that the head not only enters the pelvis with the long

diameter in one of the oblique diameters of the pelvis, but that the long axis of the head, in the great majority of cases, occupied the *right* oblique diameter; the occiput being directed towards the left foramen ovale, and the forehead towards the right sacro-iliac symphysis. Solayres de Renhac went, however, beyond his contemporary, Saxtorph, in describing the mode in which the head passed through the outlet under various circumstances, to which we shall have hereafter to revert. These advances were realized by practical accoucheurs, especially by Baudelocque and his disciples; but it was not until 1818 that Naëgelé gave a full account of the behaviour of the head in the pelvis under the various circumstances under which it may be placed in natural labour. Discarding all theory, and looking closely to the operations of Nature, he obtained an amount of knowledge which enabled him to systematize the facts of previous authors, and give us an account of the mechanism of labour, which subsequent observations have all tended to confirm. No other work, of equally small size, ever exerted greater influence upon any branch of medicine than that of Naëgelé upon midwifery. It may be termed, indeed, the Euclid of Obstetrics, but it will not have executed its mission until every accoucheur, in each individual case coming before him, entirely masters the position of the fetal head. Nothing less than this should be aimed at by every obstetric practitioner. We must not be content with knowing that the head presents, but we must know the exact mode and direction in which the head passes through the pelvis; otherwise we scarcely attain beyond the knowledge of the midwife. "Judgment," to use the words of Hippocrates, can never be otherwise than "difficult," in this subject. In estimating relations of position, we always naturally refer to the position of our own body as the standard of comparison. But in a case of labour, the accoucheur stands in the upright position, and has to deal with the mother and the child in the horizontal position; the fœtus and the mother being

themselves reversed, the child standing, as it were, on its head within the system of the mother. These complicated positions are so difficult to master, that I have heard men who have attended thousands of cases, confess themselves as only beginning to be certain of the presentations in particular instances. It is only by a careful study of the pelvis and the foetal head in the dried state, and a painstaking observation of the relations of the head and the pelvis in every case of labour, that will enable you to master this difficult problem. Nægelé tells us that he kept his finger on the head during the whole course of labour, when he wished to ascertain any particular point. There is still enough to be made out respecting the function of parturition to reward every diligent student who may devote his energies to the prosecution of this subject. In every direction we must analyze and synthesize the movements of the foetal head, and the motor forces and the mechanisms which urge and direct it in its course through the pelvis and parturient canal.

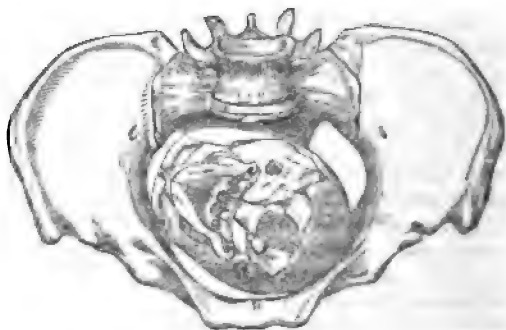
The largest movement of the foetal head in parturition is that through the canal of the pelvis, and the passage formed by the vagina and soft parts. This movement is common to all the positions in which the head passes through the pelvis. In its performance, the centre of the head corresponds pretty nearly with the axes of the hard and soft portions of the parturient canal. To this common movement are superadded various movements of the head upon its bilateral axis, its antero-posterior axis, and its vertical axis, all of which vary in character and extent according to the position in which the head first engages in the pelvis. These movements and differences, considered in relation with the pelvis, constitute the mechanism of labour and the several "positions" as they are called, in which the head presents and passes through the pelvis and soft parts. The head lies at very various depths at the commencement of labour. Sometimes the developed cervical portion of the uterus, and the contained foetal head, lie entirely in the pelvis, before the commencement of any uterine action. At others the head is high up in the pelvis, and has scarcely, if at all, entered the brim. As Dr. Rigby points out, the head is more frequently low in the pelvis in primipara, and high up in multiparous women. The cause of this is probably the greater rigidity of the abdominal walls in primiparæ as compared with multiparæ. In many multiparous cases, the head is, however, wholly within the pelvis for some time before the commencement of labour. For the description of labour it is convenient to take those cases in which the head is high up, as the standard this gives us an opportunity of tracing the steps by which the head descends through the pelvic canal.

The mechanism of labour is necessarily somewhat complicated, and it should be the aim of all teachers to render it as simple as possible, by describing as few varieties as may be consistent with nature, and requisite to be understood in practice. It is easy to multiply varieties in the position of the head, by insisting upon trivial differences;

but disservice rather than service is done in this way to the advance of obstetric knowledge. It is to be hoped that each successive describer of the process, having the aid of those who have gone over the same subject before him, may do something towards rendering the steps of this progress more and more intelligible, and more decidedly linked with practice. There are four principal positions in which the foetal head presents in the pelvis, and these positions we shall now proceed to consider. The two first positions are termed Occipito-Anterior, because in them the occiput is placed towards the pubis. The other two are called Occipito-Posterior, because in them the occiput is turned towards the sacrum.

In the First Position, the head, as already mentioned, enters the pelvis in the right oblique diameter, or in a line between the transverse and oblique diameters. The occiput is placed towards the left acetabulum, and the forehead towards the right sacro-iliac synchondrosis. At first, the long diameter of the head is parallel, or nearly so, with the superior plane of the pelvis, the occiput and sinciput being about on the same level. There is, however, a considerable lateral obliquity of the head. The right side of the cranium is considerably lower than the left, so that the most depending part of the cranial surface is the protuberance of the right parietal bone. As the head descends, there is a slight rotation upon the bilateral axis, and the occiput generally becomes lower in the pelvis than the forehead. This descent of the occiput is called the Flexion of the head. The following engraving shows the entrance of the foetal head into the pelvis in the right oblique diameter after it has commenced its descent. The mastoid process of the left temporal bone and the chin are at this time the highest portions of the foetal head; the right half of the occipital bone, and the adjoining portion of the temporal bone, being depressed:

FIG. 97.



Brim of the Pelvis and Base of the Foetal Cranium in the First Division.

If we examine per vaginam when the head is in the upper part of the pelvis in this position, the right tuber parietale is felt through the walls of the anterior portion of the cervix uteri. This is the point with which the finger comes in contact at the most depending part of the head. The right

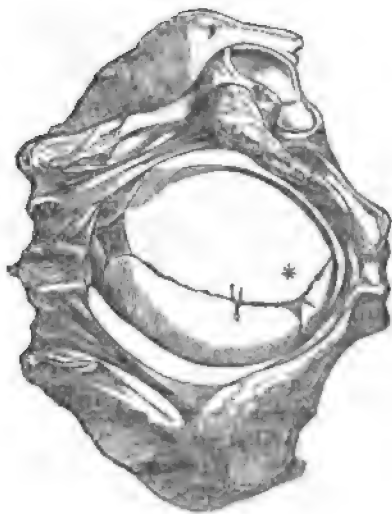
ear of the child can be felt behind the pubes, if the os uteri is sufficiently open to allow of its being reached. At this time the os uteri does not occupy the axis of the pelvic canal, but is more posterior and directed towards the upper part of the sacrum. If the finger is passed into the os uteri, the sagittal suture is felt crossing the field of the os, in an oblique direction. The patient lying on the left side, the accoucheur standing or sitting behind, and bending over her to make the examination, feels the sagittal suture running forwards and downwards in one direction, and upwards and backwards in the other. The sagittal suture divides the os uteri unequally, a larger portion of the middle and upper part of the right than the left parietal bone being included within the ring of the os. It is this middle and upper portion of the right parietal bone which is felt in making an examination at this period, and it is here that the tumour of the scalp is formed, when this arises from the pressure of the head against the partially dilated os uteri. If the os uteri is sufficiently dilated to allow the finger to be passed along the sagittal suture, it reaches in front, and to the left side of the mother, the triangular posterior fontanelle, and the diverging lambdoidal suture, while behind and to the right side of the mother, it comes in contact with the lozenge-shaped anterior fontanelle, and the coronal and frontal sutures. The earlier the examination is made, the more decidedly oblique, or approaching the transverse direction, will the sagittal suture be found.

While the foetal head is passing through the brim of the pelvis so as to enter the pelvic cavity, it has been shown to occupy the right oblique diameter. It has already been mentioned, that the first movement of the head consists of a partial revolution upon its occipito-frontal axis, so as to effect the depression of the right parietal bone. This movement is termed the *Obliquity of the Head*. In the next movement, the foetal cranium oscillates to a slight extent upon its bi-lateral axis, so as to cause a dip of the vertex. This movement, which brings the chin into contact with the sternum, is called the *Flexion of the Foetal Head*. The lateral obliquity, the dip of the occipital bone, and the position of the long diameter of the foetal head in the right oblique diameter of the pelvis in the First Position, are shown in Fig. 97.

As the foetal head descends in the pelvis, it performs what is termed, *par excellence*, its "*Rotation*." The long diameter of the head changes from the oblique to the antero-posterior diameter, or nearly so. The most prominent portion of the occipital bone glides downwards and forwards upon the inclined planes formed by the descending ramus of the pubis and the internal surface of the ilium, so that the middle portion of the superior and posterior quarter of the right parietal bone, and its posterior and upper angle, become successively the most prominent points of the descending head. It is in this latter position the tumour of the scalp or caput succedaneum is formed, by the pressure of the soft parts of the outlet upon the head. In this position, also, the head emerges underneath the arch of the

pubis. In the rotatory movement from the oblique to the antero-posterior diameter, the head describes about one eighth of the circle. In emerging from the pelvis, the head is placed almost as obliquely as at its entrance, the right tuber parietale being still lower than the left. The head does not emerge either with the occipital or parietal protuberance foremost, the part which escapes first being a point between the two, namely (as already mentioned), the upper and posterior part of the right parietal bone. The following engraving represents the foetal head low down in the pelvis, in the first position. The pelvis is placed upon its left side, so as to imitate, as far as possible, a resemblance of what is felt by the finger of the accoucheur, in making an examination at this part of the process, as far as the bones are concerned. I believe this is the first time such a representation has been made, and it appears to me to convey more information than any figure of the base of the foetal skull and brim of the pelvis—the method hitherto followed in illustrating the mechanism of labour.

FIG. 98.



Outlet of the pelvis, and the Foetal Head passing through it in the First Position. The asterisk marks the presenting portion.

Another movement of the foetal head now demands our attention. We have referred to the flexion of the head, by which the chin is brought towards the sternum, and the occiput depressed. When the occiput has passed under the arch of the pubis, this portion of the head becomes to a great extent a fixed point, and the frontal bone and face of the child come down, describing an arc in their progress. This is called the *Extension of the head*, the chin being now separated from the sternum, and the forehead appearing at the lowest part of the cranium.

Immediately after its emergence from beneath the pubic arch, the head usually rotates back again to the aspect it held in the upper part of the pelvis, the face being now turned towards the right thigh of the mother. This re-rotation, which is termed the *Restitution of the head*, is effected in

the following manner:—It generally happens, that as the head escapes, the right shoulder of the fœtus is lowest in the pelvis, and impinges upon the anterior surface of the right ischial spine. From this point it rotates forwards towards the arch of the pubis, under which it passes out, the left shoulder resting upon the perinæum, and generally escaping first. Thus the body of the fœtus rotates in an exactly opposite direction to the previous rotation of the head. The left side of the head glides down the left ischial plane, and the right shoulder glides down the plane of the right ischium.

FIG. 99.

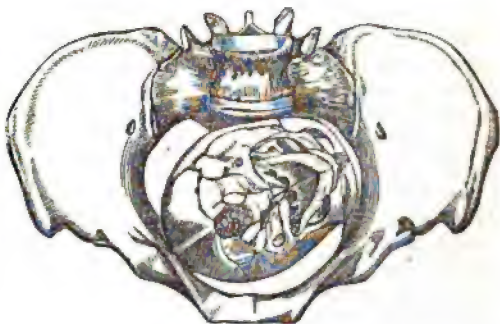


If it should happen, which is occasionally the case, that the left shoulder should be lowest in the pelvis, it glides down the left ischial plane, the shoulders rotate in the same direction as the head, and the face of the child is then turned downwards and towards the left thigh of the mother. When the pelvis is large, and the delivery effected suddenly, the shoulders are sometimes expelled in the transverse diameter of the pelvic outlet without any rotation. In the emergence of the head and trunk from beneath the pubis, the direction impressed by the perinæum, and the expulsive efforts, is such that the head turns upwards between the thighs of the mother, in front of the symphysis pubis, as represented in the preceding engraving:—

In the Second Position, the occiput is turned towards the right acetabulum, and the forehead towards the left sacro-iliac synchondrosis, as the head passes through the brim. The left part of the base of the skull is lowest, the occipital dip, or flexion, being the same as in the first position.

The left side of the head is the lowest, in the second position, as the head descends, the same portions of the left parietal bone being prominent, instead of the right. The left ear is felt behind the pubis. The sagittal suture is now found nearly parallel to the left oblique diameter. In an examination, the finger passes upwards and forwards to reach the posterior fontanelle, and downwards and backwards to reach the anterior. The occiput glides down the right ischial plane. The rota-

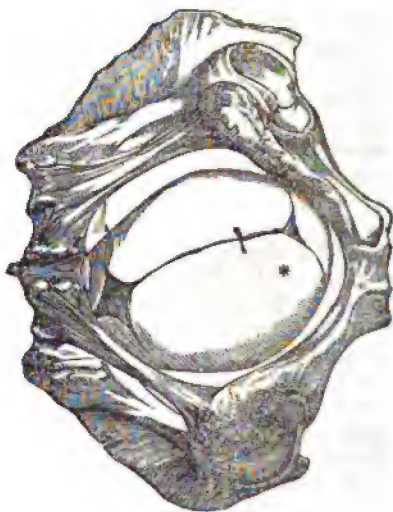
FIG. 100.



Brim of the Pelvis and Base of the Fœtal Cranium in the Second Position.

tion is precisely the same as in the first position, except that it is in the reverse direction. The rotatory movements of the shoulders are also reversed, the face of the child generally turning downwards, and to the left thigh of the mother. The following figure represents the head passing through the pelvis in the second position.

FIG. 101.



Outlet of the Pelvis, and the Fœtal Head passing through it in the second position. The asterisk marks the presenting portion.

Let us now proceed to recapitulate the different evolutions performed by the fœtal head in its passage from the pelvic brim to the external world in the first and second positions.

I.—The movement in the parabolic curve formed by the axis of the pelvic canal and of the vagina.

The different parts of the fœtal head change their position in this progress, but the centre of the fœtal head may be considered as traversing the axis of the pelvis and of the soft parts of the parturient canal.

II.—The movement of the fœtal head upon its occipito-frontal axis.

This movement causes one side of the fœtal head to become lower than the other during the

whole progress of labour, after the head has entered the brim.

III.—The movements of the foetal head upon its bi-parietal axis.

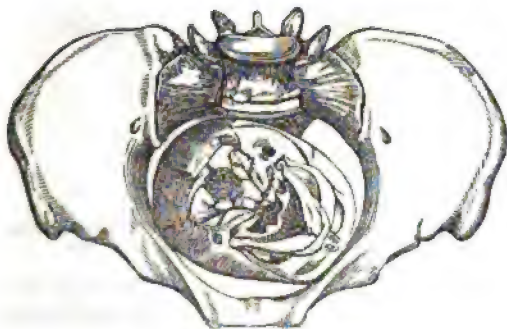
These movements consist—first, of the depression of the occiput; and second, of the depression of the sinciput. In the descent of the head through the pelvis, the occipital pole is depressed, but as it emerges under the pubic arch, the frontal pole becomes the lowest point. This oscillation of the forehead downwards upon the bi-lateral axis, constitutes what is termed the extension of the head.

IV.—The rotatory movements of the foetal head upon its perpendicular axis.

These movements constitute the rotations of the head in the pelvis, and subsequent to the delivery of the head, the latter movements being called the restitution of the head. If the head should be placed transversely at the brim of the pelvis, since it emerges in the antero-posterior diameter nearly so, it makes about one-fourth of a complete rotation, but if it be placed in the oblique diameter at the commencement of labour, the rotation is only one-eighth.

In the Third Position, the forehead is, at the commencement of the passage through the pelvis, placed opposite the left acetabulum, and the vertex towards the right sacro-iliac synchondrosis. The foetal head occupies the right oblique diameter, as in the first position, only the long diameter of the head is exactly reversed, the sinciput being directed forwards, and the occiput backwards.

FIG. 102.



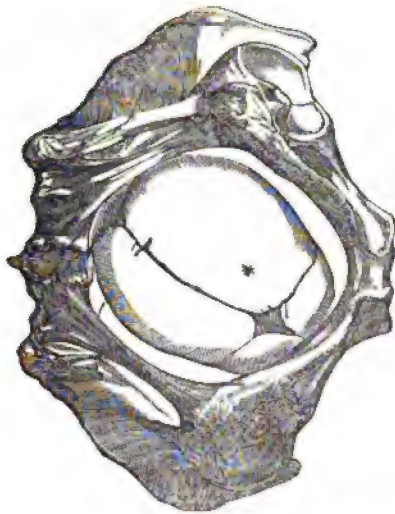
Brim of the Pelvis, and Base of the Cranium in the Third Position.

The anterior and posterior fontanelles are at this time generally on a level, or nearly so. The sagittal suture, as the patient lies in the obstetric position, runs obliquely forwards and downwards, and upwards and backwards, just as in the first position. Passed downwards and forwards the finger comes to the anterior fontanelle, and upwards and backwards it reaches the posterior bregma. Instead of the right tuber parietale, it is the left parietal bone which is felt lowest in the pelvis. Generally in these cases, as labour proceeds, the vertex descends more than the forehead, so that it is easier to reach the posterior than the anterior fontanelle. When the head is thus placed in the third position, it may take two paths in its exit from the pelvis. In one, the vertex may continue

to descend, and approach towards the antero-posterior diameter of the outlet, the head being expelled with the forehead towards the pubis, and the occiput towards the sacrum. The head in this case is expelled just as it is in the oblique position, except that the positions of the forehead and vertex, and the anterior and posterior fontanelles, are reversed. If the head takes the second route, the vertex, instead of descending in its original position, or inclining towards the sacrum, rotates upon its perpendicular axis, and the long diameter of the head passes first into the transverse diameter of the pelvis, and then into the left oblique diameter. At the completion of this change, the head exactly occupies the second position, with the posterior fontanelle towards the right foramen ovale, and the anterior fontanelle towards the left sacro-iliac synchondrosis. The modes in which these two different terminations of the third position are effected are as follows:

The spinous process of the ischium appears to be the determining cause of the ultimate direction of the head in the third position. If the occiput is driven below and behind this point, the head emerges from the pelvis in the position it held at

FIG. 103.



Outlet of the Pelvis, and the Foetal Head in the Third Position. The asterisk marks the presenting portion.

the commencement of its passage through the pelvis, or nearly so. The forehead is in apposition with the left part of the pubic arch, and the occiput with the right sacro-iliac synchondrosis. The prominence of the occiput is in this case a serious impediment to the passage of the head over the sacral surface and through the perinæum. When the pelvis and the head are of average size, the foetal head cannot pass in this position until it has been moulded by the pressure of the sacrum and the uterine pains. Before the head is expelled, the occiput is compressed and the cerebral mass is thrown forwards, so that when the child is born, the forehead is prominent and the occiput edpress-

ed. Some authors say that the foetal head seldom or never passes in this direction, except when the pelvis is small and the foetal head large; but I have several times met with examples of the third position in which the head had descended to the perinæum in the third position, in cases where the head had been of large size, and in which it was necessary to apply the forceps to effect delivery. When the child is born in the occipito-posterior position, the forehead, eyes, nose, mouth, and chin successively emerge from under the pubis, and the occiput is forced down the sacral and coccygeal planes, and over the perinæum. This is represented in the following figure, which may be contrasted with Fig. 99.

FIG. 104.



Expulsion of the Head in the Occipito-posterior Position.

More frequently, the head, on entering in the third position, passes downwards, until the occiput meets the spine of the right ischium, when, instead of passing behind this prominence, it glides in front of it, and, directed by the ischiatic planes, passes downwards and forwards until it occupies the second position. The vertex in this movement travels from the right sacro-iliac symphysis to the right foramen ovale. The head is then borne in precisely the same way as though it had originally presented in the second position, or the left oblique diameter of the pelvis.

In the Fourth Position, the head enters the pelvis in the left oblique diameter, but the forehead is directed towards the right acetabulum, and the occiput towards the left sacro-iliac synchondrosis. Just as the third position is the reverse of the first, so this is the reverse of the second. As the head enters the brim, the occiput and the right side of the base of the foetal head are depressed, and the right parietal bone is the lowest point. This is represented in the following figure.

Inferiorly, the sagittal suture runs in the same direction as in the second position; but the anterior fontanelle is divided towards the right foramen ovale, and the posterior towards the left sacro-iliac synchondrosis. The right parietal bone is the presenting portion of the head, and the part

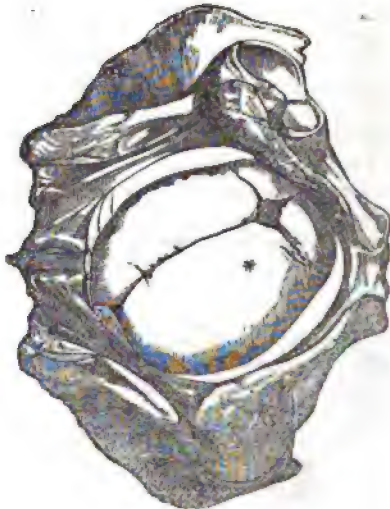
FIG. 105.



Brim of the Pelvis, and Base of the Foetal Cranium in the Fourth Position.

reached in examination by the finger is the anterior and upper part of the right parietal surface.

FIG. 106.



Outlet of the Pelvis and Foetal Head in the Fourth Position. The asterisk marks the presenting portion.

As in the third position, the vertex may either pass into the hollow of the sacrum, and the head be delivered in the left occipito-posterior position, or it may advance in front of the spine of the left ischium, and be converted into the first position. The latter is the usual termination of presentations in the fourth position, just as delivery in the second position is the usual sequence of presentations in the third position.

These are the chief positions in which the head presents and passes through the pelvis in natural cases. Other varieties are enumerated by some obstetric teachers, such as the descent of the head through the upper part of the pelvis, in the transverse or in the antero-posterior diameters. This would make four other positions, since the occiput may be either on the right or left side in such cases, or placed anteriorly or posteriorly. These varieties need only be mentioned, in regard to the mechanism of natural labour, as they rarely,

if ever, occur, except when the head of the fœtus is very small in comparison with the size of the pelvis, or when the pelvis is deformed, and its transverse or antero-posterior diameters considerably increased.

LECTURE XXII.

THE MECHANISM OF LABOUR.

GENTLEMEN,—The mechanism of parturition, in the several positions in which the fœtal head passes through the pelvis, occupied our attention in the last lecture. It would be difficult to exhaust this subject in the course of several lectures. Mechanism, Position, and Motor power, in their various relations, are the Elements, or Grammar, of the Obstetric Art. It is absolutely necessary that they should be mastered in order to practise midwifery with anything like satisfaction. I need not dwell on the difference between the state of mind of a student or young practitioner who, with a case of labour under his hands, knows the exact position of the head, and one who merely knows that the head presents, without being in the least degree aware of the position in which it may be expected to make its exit. The one will await the result with the confidence which knowledge alone imparts; the other will be disturbed with fears of something wrong, and anticipations of occipito-posterior births, when nothing of the kind is likely or possible, or with apprehensions of other complications or causes of difficulty and delay.

The positions in which the head presents are not most frequent in the order in which they are numbered in describing the positions themselves. The presentations in the First Position are more numerous than all the other positions put together. Naëgelé found the first position to occur in 69 per cent. of the head presentations which came under his observation. M. Halmagrand gives 74 per cent., Madame Lachapelle 77 per cent., and Madame Boivin 80 per cent., as the proportion of the first position in head cases. Dr. Simpson found the first position in 256 cases out of 335 cranial cases. The variation between 69 and 80 per cent. is not very great, and as the statistics of these authors extend to 60,000 cases, we may be sure that the frequency of the presentation of the head is pretty accurately given in these results. Since the time of Naëgelé's observations, the Third Position has been shown to be the next in frequency to the first. In Naëgelé's own practice, he diagnosed the third position in 29 per cent. out of 1210 cases. Other authors describe the Second Position as being met with in a greater proportion than that given by Naëgelé, and they place the second position as being the next in frequency to the first. Naëgelé explains this by supposing that the occurrence of the third position is frequently not ascertained until it has changed into the second position, and it has then been considered to have been the second position originally. This is in all probability the truth. Madame Boivin describes

the second position as occurring in 19 per cent., and Madame Lachapelle in 21 per cent.; while Naëgelé, out of more than 1200 cases, found it only in .07 per cent. Dr. Simpson remarks that Naëgelé's observations were made by himself, while those of Madame Boivin and Madame Lachapelle were made by females attached to the Maternité Hospital of Paris. We may, then, conclude that Naëgelé's proportions are the most correct, and the observations made subsequently to his own tend strongly to confirm them. Naëgelé found the Fourth Position to occur only in the small proportion of .03 per cent. Thus we may consider the first position as the most frequent; the third comes next in order; and the second and fourth are the most rare. In this enumeration, cases occurring originally in the third and changing in the second, are considered as belonging to the third position. While I have no doubt that Naëgelé was, in the main, correct in his estimate of the great frequency with which the third position changes into the second, I believe a larger number than he supposes are delivered as occipito-posterior cases. Naëgelé states, that out of 96 cases in which the head presented originally in the third position, he only observed it to be delivered in the occipito-posterior direction in 3 cases, and in all of these the pelvis was larger than usual, or the head was small and compressible. Out of a smaller number of vertex cases in the third position, I have met with two instances in which the labours were very severe, and in which the head passed with the occiput towards the rectum.

In the first and third, or the most common positions of the head at the commencement of labour, it will be observed that the head occupies the left oblique diameter; in the first the occiput being the most anterior part of the head, and in the third the sinciput. In both, the right side of the head is lowest in the pelvis. As far as I am aware, no other reason can be given for the greater frequency of presentations in the left oblique position with the right side of the fœtal head downwards, than the greater strength of the right limbs, and the occupation of the right oblique diameter by the rectum.

It is necessary that what is meant by the presenting part of the fœtal head should be clearly defined. Hitherto, a good deal of confusion has prevailed upon this subject. Is it the part found most prominent within the ring formed by the soft parts of the parturient canal in the different stages of labour—namely, the os uteri, the vagina, and the osium vaginæ? Is it the part of the head found lowest in the pelvis during the progress of labour? Is it the part first met with on introducing the finger into the pelvis, in the direction of its axis? It will be found that all these points of view are mixed up together, in some of the best and most recent works on obstetrics, with the effect of causing considerable confusion. For instance, the right tuber parietale is very commonly said to be the presenting part in the first and fourth positions, as the head passes through the brim and upper part of the pelvis, because it is the lowest

point met with on introducing the finger into the vagina. It is, however, more frequently, indeed almost invariably, felt through the anterior wall of the cervix, and not within the ring of the os uteri, unless after the full dilatation of the latter. I would suggest that it would be best to define the presenting part, in every kind of cranial position or presentation, as that portion of the foetal head felt most prominently within the circle of the os uteri, the vagina, and the ostium vaginae, in the successive stages of labour.

We may consider the right and left tuberosities of the parietal bones as points common to the positions in which the occiput is found either on the right or the left side of the pelvis respectively. That is, in the first and fourth positions, the occiput is in one case in the early part of labour in the neighbourhood of the left acetabulum, and in the other near the left sacro-iliac synchondrosis. In both, the right tuber parietale is the lowest point of the foetal head, in the early part of labour. In the second and third positions, the occiput is turned towards either the right acetabulum or the right sacro-iliac synchondrosis. In both, the left tuber parietale is lowest in the pelvis.

In the first position, when the os uteri is open to the extent of, say an inch in diameter, the part felt within the circle of the os is the upper and nearly the middle portion of the right parietal bone. As labour advances, the part of the head in the centre of the dilated os uteri is the middle portion of the posterior and upper quarter of the same bone. When the os is sufficiently open, the right tuber and the right ear may be felt. As the head advances through the vagina and presents at the outlet, it is the upper and posterior angle of the bone which is most prominent. It is upon these parts in succession that the tumour of the scalp or caput succedaneum is formed by the pressure of the os uteri and the other portions of the parturient canal upon the foetal head. The tumour of the scalp formed upon the middle of the upper half of the right parietal bone by the os uteri, may be called the primary caput succedaneum. When the os uteri is rigid, the swelling marks the foetal head very distinctly, and if the subsequent part of the labour should be easy and rapid, there may be no other tumour. If the latter part of labour should be difficult, a swelling of the scalp is formed over the posterior and superior angle of the right parietal bone. This may be called the secondary tumour. Sometimes the dilatation of the os uteri is so easy, and the compression of the scalp so slight, that no primary tumour is formed. In other cases a tumid ridge extends from the middle of the upper border of the right parietal bone to its posterior and superior angle, or even to the upper portion of the occipital bone.

In the fourth position, the part first felt within the os uteri, as the head lies in the left oblique diameter, with the occiput towards the left sacro-iliac synchondrosis, is the middle of the upper portion of the right parietal bone, very nearly, in fact, the same point as is felt in the first position. It is here that the primary tumour of the scalp is

formed. The sagittal suture is, however, nearly in the direction of the left oblique diameter, the anterior fontanelle is directed towards the right acetabulum, and the posterior fontanelle towards the left sacro-iliac synchondrosis. In the first position, the sagittal suture, it will be borne in mind, runs nearly in the direction of the right oblique diameter.

It has been shown that the head, when presenting in the fourth position, may descend through, and emerge from, the pelvis, in two modes. The occiput may turn towards the hollow of the sacrum, in which case the frontal bone approaches the left side of the pubic arch; or, as we have seen, the occiput may turn forwards and make a quarter, or rather more than a quarter turn, so as to approach the left portion of the pubic arch.

In the first termination, the anterior and upper portion of the right parietal bone passes first through the vagina, and emerges underneath the arch of the pubis. It is upon this point that the secondary caput succedaneum is formed. Sometimes this overlaps the posterior part of the right frontal bone, and some portion of the anterior fontanelle.

In the second termination of the fourth position, the parts of the head present in almost precisely the same order as in the first position, and the tumour of the scalp is formed in the same sites. The change is from the middle and upper portion of the right parietal bone to the posterior and upper angle of the same bone.

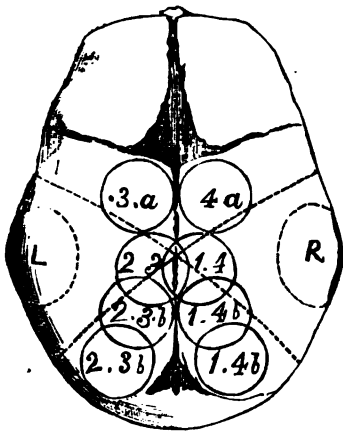
In the second and third positions, the presenting parts of the foetal head and the tumours of the scalp are the same as in the first and fourth, only it is the several parts on the left parietal bone, instead of the right. In the second position, the middle of the upper portion of the left parietal bone presents in the first instance, and movements of rotation and advance gradually bring the posterior and upper portion of the parietal bone to be the site of presentation under the left portion of the upper part of the pubic arch. In the third position, it is the middle and upper portion of the left parietal bone which presents within the area of the dilating os uteri. In the first and common termination of this position, the head, in making its quarter turn, so as to bring the occiput to the right foramen ovale, brings the same parts of the left parietal bone into presentation, as in the second position. In the second termination of the third position, the turn to the extent of one-eighth of the circumference of the pelvis brings the anterior and upper part of the left parietal bone to be the presenting part, and this is the first portion of the head to emerge under the pubis in such cases.

As the vertex is not the first part to be delivered in occipito-anterior cases, but the posterior and upper part of the right and left parietal bone, it follows that in the labours occurring in the first position and in the occipito-anterior termination of the fourth position, it is the right tuber parietale which is first delivered. When this has passed through the ostium vaginae, the circle of the outlet intersects the head between the two tuberosities in a

diagonal direction. The same occurs with respect to the left tuber parietale in the second position, and in the occipito-anterior termination of the third position. So, also, in occipito-posterior deliveries, the two tuberosities do not pass through at the same time. In the fourth position it is the left, and in the third, the right, tuber which first escapes. Thus the bi-parietal diameter of the head always passes through the pelvis and soft parts in an oblique direction, so that the largest lateral diameter never engages the opposite sides of the canal at the same time.

The moulding of the foetal head during a severe labour is peculiar in the different positions. In the occipito-posterior positions, the mass of the brain and the cranium are so moulded that the anterior or frontal end of the cranial ovoid becomes larger than the occipital. In the fourth occipito-anterior position, the right, and in the third, the left, side of the frontal region is the most prominent. In the first, and the occipito-anterior terminations of the fourth positions, the head is moulded so as to make the right side of the head, and especially the right side of the occipital and posterior parietal regions the most prominent. In the second, and the occipito-anterior terminations of the third, the same prominence is impressed upon the left and posterior portion of the foetal head. Dr. Swayne, of Bristol, has pointed out that in occipito-posterior positions, a vacant space may be felt under the pubic arch owing to the small size of the frontal part of the head before it has been moulded by the pressure of parturition.

FIG. 107.



R. Right parietal bone. L. Left parietal bone.

1. 1. 1. The different points of the right parietal bone which present successively in the first position.
 2. 2. 2. The part of the parietal bone which presents at the os uteri, in the first position, at the commencement of labour.
 3. 3. 3. The part of the parietal bone which presents at the os uteri, in the fourth position, when the head is delivered in the occipito-posterior position.
 4. 4. 4. The points of the right parietal bone which present successively when the head, presenting in the fourth position, makes the quarter turn, and is delivered in the occipito-anterior position.
- The figures 2, 3, 3a, and 3b, 3c, mark in the same way, the presenting points in the second and third positions of the head, on the left parietal bone.
- The two diagonal lines across the head mark the intersection of the head by the vulva and perineum, as the head passes out, so that only one tuber parietale occupies the os uteri vagina at the same time.

On former occasions I have referred to the principle of the Screw, which obtains in the pelvis, and to the screw-like, spiral, or rotatory movement of the foetal head in passing through the pelvis in the different cranial positions. It has not hitherto been made out, but I believe the mechanism of the pelvis and the foetal head to be precisely that of a body moving down a spiral inclined plane or screw. A screw is an inclined plane, arranged in a spiral form, either round a solid cylinder, or upon the internal surface of a hollow cylinder. When the one is fitted into the other, the spiral arranged round the solid cylinder is called the male, and that around the hollow cylinder, the female screw. In the mechanics of parturition, the pelvis plays the part of the female, and the foetal head the part of the male screw; and it is by the movement of the one within the other, in a spiral direction, that the head passes, so as to meet with the least possible mechanical resistance from the pelvis and soft parts.

The transverse, oblique, and antero-posterior diameters are successively the longest diameters, in passing from the brim of the pelvis to the outlet. The foetal head, being of oblong shape, can only pass by entering the brim in a position approaching to the transverse, and descending with the long diameter of the head in relation, first with the oblique diameter, and then with the antero-posterior diameter of the pelvis, or very nearly so. Such is, in reality, the direction in which the head moves. If we were to place a number of pelvises one above another, we should represent pretty correctly the chamber of a female screw; and a line drawn through the long diameters of the various planes would form a spiral, and mark the path of the groove, or thread, as it is termed, of the screw. In the single pelvis, a line drawn from the transverse, through the oblique, and towards the antero-posterior diameters, would mark the path of the portion of the spiral through which the foetal head moves in parturition. This, in the case of the first position, is somewhat more than one-eighth of a circle. The arrangement of the foetal head with reference to the trunk favours this rotation. The spiral incline of the pelvis impresses itself upon the foetal cranium as the head of the male screw, and this rotation is facilitated by the ease which the head of the foetus moves upon the neck.

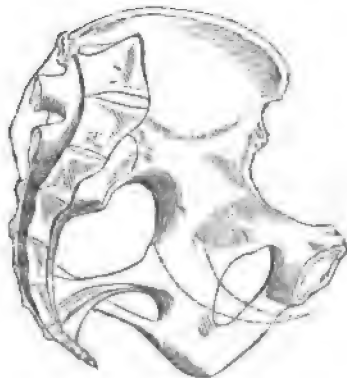
The pelvis represents a portion of a female screw, admitting a male screw, (the foetal head,) of an oblong shape. But the male and female screws in the case of the pelvis and foetal head, are not accurately adjusted at all points. There is, however, a general adjustment in the shape of the foetal head and the arrangement of the pelvic diameters. It is only at the points where the posterior part of the parietal bone, or of the occiput, comes in contact with the planes of the ischium and pubis, that the thread of the male screw bites, as it were, the thread of the female. It is here that the spiral direction is impressed upon the foetal cranium. The line of this portion of the spiral or screw may be made out by chalking the salient point of the foetal head, and moving it through the pelvis in

the direction it takes in parturition. The chalk line marked upon the pelvis by this proceeding will show, accurately, the track of the segment of the thread or groove of the female screw, through which the prominent portion of the head passes.

The two halves of the pelvis also represent portions of two screws, the inclined planes of which are arranged in opposite directions. Thus, if the head be placed in the second position, the spiral movement is reversed from that which obtains in the first position, and the long diameter of the foetal cranium moves from the transverse, or the left oblique, to the antero-posterior diameter. In the case of labour occurring in the first, the right shoulder moves upon the right portion of the spiral or screw formed by the right ischium and pubis, and glides down it, just as the head does in the second position. In the second position, on the contrary, after the delivery of the head, the left shoulder rotates upon the planes of the screw or spiral of the left side of the pelvis, and passes out with a movement similar to that which belongs to the head in the first position.

Perhaps the screw or spiral motion is seen still more distinctly in the common terminations of the third and fourth positions. Here, rather more than one-fourth of a circle is completed in the movement which brings the occiput from the right or left sacro-iliac synchondrosis, to the right or left ramus of the pubic arch. The movement is distinctly spiral, only that when the head presents in the occipito-posterior position, it has to pass through a spiral having a larger diameter than when the head presents in the occipito-anterior positions. The two lines marked upon the following diagram mark the different paths through which the head glides when it presents in the first and fourth position, and passes towards the antero-posterior diameters. In both it is distinctly screw-like, or spiral. A similar diagram of the right side of the pelvis would give the lines of the spirals traversed by the head in the second and in the third positions, when the head is born in the occipito-anterior position.

FIG. 108.



Outline of the internal surface of the left half of the pelvis. The two curved lines mark the path of the head in the first, and in the occipito-anterior termination of the fourth positions.

The contractions of the uterus and abdominal muscles constitute the *vis à tergo* which moves the foetal head down the planes of the ischium and pubis. No rotatory movement appears to be given to the foetal head by the pains. The spiral direction depends entirely upon the portion of the spiral inclined plane formed by the osseous surfaces. If any weight or pressure be placed upon a male screw, adjusted in the chamber or box of the female, it has the tendency to descend the spiral plane. We see this familiarly exemplified in the press for stamping letters, in which a weight at the top of the screw causes it to descend. In practice, these considerations are important with reference to the direction in which traction can be used to the greatest advantage in delivery by the long or short forceps; rectifying the positions of the head in the case of presentations in the third or fourth positions; and in other operative proceedings.

LECTURE XXIII.

THE STAGES OF LABOUR.

GENTLEMEN,—I have been accustomed to divide Labour into a Preliminary and a Supplemental Stage, and the three principal stages of Dilatation, Propulsion, and Expulsion.

In the Preliminary or preparatory Stage, the uterus and other organs become fitted for the commencement of actual labour.

For two or three weeks before the date of parturition there is a subsidence of the abdominal tumour, the womb sinks into the pelvis; the waist, in consequence, becomes smaller, and the respiration and general mobility are less oppressed. A few days before the accession of labour, the subsidence of the uterus is still more remarkable, and it now begins to contract in an equable and continuous manner, as though gathering itself up for the coming effort. This contraction of the uterus is moderate, but it is not always paroxysmal, or attended by uterine pain.

In the preliminary stage of labour there is the persistent contraction of the whole of the uterus, which has just been referred to; the uterus becomes firm and ovoid, and is more readily distinguishable from the rest of the abdominal contents than before. The abdominal tumour now becomes distinctly uterine. Owing to the persistent contraction of the uterus, the mother sometimes misses the rolling movements of the uterus, and imagines the child to be dead.

Besides the persistent uterine contraction, there is usually an irritable state of the sphincters of the rectum and bladder. The bowels are generally opened two or three times, and there is a frequent desire to evacuate the bladder. The effect of these actions of the bladder and the intestines is to free the pelvis and the lower part of the abdomen from all unnecessary incumbrance and thus to give room to the parturient canal. As the pains commence there is usually a sanguineous

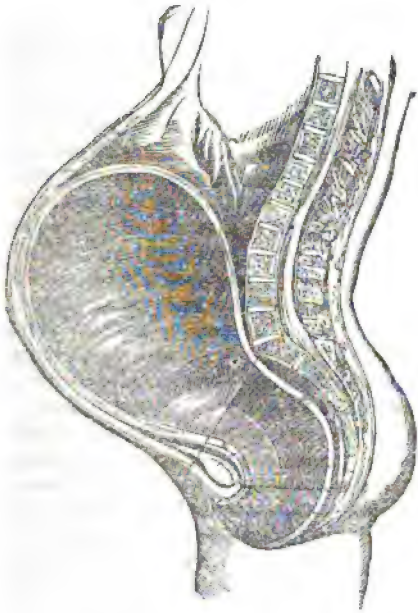
discharge, termed the "show," but this is not invariably present.

In the Stage of Dilatation, the os uteri is opened, so as to admit the passage of the foetal head.

In this process of expansion, the os and cervix uteri are to a certain extent obliterated, and the uterus and vagina become one continuous canal. In a preceding Lecture I have dwelt on the mode in which this dilatation is effected, partly by the influence of the contraction of the body and fundus upon the os uteri, partly by the fluid pressure of the amniotic bag, and partly by the active dilatation and relaxation of the circular fibres or imperfect sphincter of the os itself.

The direction in which the motor force of the uterus is at first exerted is downwards and backwards, in the direction of the axis of the uterus, and the axis of the inlet of the pelvis. The dilatation of the os uteri tends, by reflex action, to dilate the cardia, and it often goes on to produce actual vomiting. When the stomach is emptied of its contents, the freedom of the respiratory movements is increased, and the dilatation of the parturient canal is promoted. Sickness is sometimes present during the whole of this stage, but, if not, it frequently appears at the time of the complete dilatation of the os uteri.

FIG. 109.



The cavity of the Uterus, with the Parturient Canal in a state of full dilatation.

It is not a little remarkable, that in the early part of dilatation the excitor nerves affected by the pressure of the membranes and foetal head should be chiefly in relation with the lower medulla and the uterus, while those which come to be excited at the time of full dilatation of the os uteri should affect the medulla oblongata, and the muscles engaged in the act of vomiting, including a considerable number of the muscles of

respiration. Another singular affection of the muscular system now occurs. A very distinct shivering, or rigor of the muscles, is often observed at the time when the os uteri is completely dilated. This rigor is very similar to the shuddering produced by the dilatation of other sphincteric muscles. Many persons experience this when the first morsel of food at a meal is passing the cardia, when the urine first passes in micturition, or when a catheter is passed, or when the sphincter ani first dilates. These rigors, accompanying the full dilatation of the os uteri, are sometimes so severe and continued as to excite alarm, lest they should pass into general convulsions; and this is, in fact, one of the modes in which the invasion of the puerperal convulsion occurs.

The last act of the stage of dilatation is the rupture of the membranes, and the entire or partial discharge of the liquor amnii. The membranes having acted as an efficient dilator of the os uteri, as far as it dilates by mechanical distension, suddenly give way, and the uterus becomes smaller in compass, contracting more closely and powerfully upon the foetus. As long as the membranes are unbroken, the circulation in the uterus is not materially interfered with, and the contractions are not so powerful as they afterwards become, on account of the disadvantages under which the uterine fibres act. But as soon as the waters are discharged or diminished, the uterus contracts more closely upon the foetus, and prepares itself for the stage of propulsion, which we shall next have to consider. The circulation in the uterus, and consequently the changes going on in the placenta, are then considerably interfered with; so that the stage of propulsion is of much greater moment to the life of the foetus than the stage of dilatation, which is now brought to a conclusion.

In the Stage of propulsion, the presenting part of the child is passed on from the middle portion of the pelvis to the ostium vaginae.

At the time when this stage of labour commences—namely the point at which the liquor amnii is discharged, and the os uteri becomes fully dilated, the motor force of parturition is applied in quite a new direction. The direction in which the foetus has now to pass is in that of the axis of the outlet of the pelvis, which is forwards and downwards. It is at this point that the expiratory muscles come into play, particularly the abdominal muscles, and thus the new direction is provided for. Before the dilatation of the os uteri, we had to consider the foetus as an ovoid mass, and the axis of this ovoid was the same as the axis of the uterus, and as the axis of the inlet of the pelvis. After the dilatation, we may speak of two axes of the foetus—one, the axis of the head, in its long or occipitomental diameter; the other, the axis of the body of the foetus. Now, this axis of the head, in a natural presentation, becomes nearly the same as the axis of the outlet of the pelvis, through which it has to traverse; and the foetal body, being flexible, readily passes, as it descends, from the direction of the superior to that of the inferior pelvic axis. All these correspondences

cannot fail to strike the attention, but they are only a few of those which accompany this stage of parturition.

I have already mentioned the advantage given to the uterus by the rupture of the membranes. The same circumstance is equally favourable to the action of the abdominal muscles. A further adaptation, therefore, becomes visible in the precise time at which the liquor amnii is discharged. When the bulk of the uterus is increased by the liquor amnii in addition to the fœtus, the abdominal muscles are so distended that they could only act with difficulty. But after the diminution of the size of the uterus by the discharge of the waters, the abdominal muscles are more free to act, and it is now that they are called upon to aid in the expiratory actions which propel the head of the child through the vagina. When voluntary movements of expiration are unadvisedly made during the stage of dilatation, they are always awkward and fatiguing to the patient; but, during the stage of propulsion, the contractions of the abdominal muscles are so powerful as to be no inconsiderable stimulus to the uterus itself. I mean, that besides their direct expulsive power, the pressure they exert upon the uterus excites this organ to more powerful action. Thus, in this stage of labour, when the uterine contractions flag, they can sometimes be renewed by voluntary contractions of the expiratory muscles.

But there is a cause for the intervention of the respiratory system as well as the sign of its utility. In the stage of dilatation, the ovarian and uterine nerves were the chief amongst the excitator nerves of the motor actions which then occurred. As soon, however, as the fetal head, protruding through the os uteri, begins to press upon the vaginal surface, a new set of excitator nerves become implicated. These nerves are the excitors of the expiratory actions of parturition. As long as the internal surface of the uterus alone is irritated, whether by the fœtus, a polypus, or other bodies, the uterus contracts by itself; but as soon as the vagina is impinged upon, the expiratory force is brought to bear. Another point worthy of observation is, that the excitator nerves of the uterus, except at the extreme dilatation of the os uteri, when the stomach was disturbed, were in connexion with the lower portion of the true spinal marrow only; but the vaginal excitator nerves are in relation both with the lower medulla and the medulla oblongata. By the lower medulla, and the excitator and motor nerves in relation with it, reflex actions of the uterus are produced by excitation of these nerves; while all the reflex actions of the respiratory system depend upon the medulla oblongata. If the spinal marrow were divided in the middle, there would probably be no respiratory action in parturition, unless the pneumogastric can act as an excitator during labour. Voluntary efforts, and the forcible efforts of emotion, are often mixed up with the pains; but the respiratory acts of this stage of labour are truly reflex in their nature. The expiratory actions occur during the insensibility of puerperal convulsions, when emotion and

volition are both suspended. If they were not reflex and physical in their nature, the exhaustion following a strong labour would be far greater than it is. It is a principle of reflex action that it induces no fatigue. Hence we see even weakly women making powerful efforts, but perfectly refreshed between the pains, and easy and composed after several hours of severe labour, complaining of nothing beyond the mere soreness of the muscles consequent upon their energetic contractions.

It may be well to describe minutely the motor phenomena of the contractile part of a pain in this stage. At the coming on of each pain, the patient takes a deep inspiration, as a preliminary. Expiration then takes place slowly and forcibly, in a succession of gasps, and when the air in the thorax is diminished, it is suddenly renewed by hasty inspirations. Each pain consists, as far as the respiratory muscles are concerned, of several sudden and deep inspirations, followed by prolonged and laborious expiratory efforts, with the glottis partially or entirely closed. At the acme of a pain in this stage of labour, the glottis and cardia are entirely closed, the glottis only opening partially at intervals, and the abdominal and all the other ordinary and extraordinary muscles of expiration being forcibly contracted. The diaphragm remains inert, as in vomiting, with the actions of which, except that the cardia is closed instead of opened, the efforts of the expiratory muscles in labour may be compared. Obstetric writers have taught that the diaphragm contracts in this stage; but if it be considered for a moment that the diaphragm is a muscle of inspiration, while the actions of parturition are expiratory, the fallacy of such a view of the action of the diaphragm must at once appear. Of the contraction of the abdominal muscles during this stage of labour there can be no doubt; and the actions of the diaphragm and abdominal muscles are antagonistic. It is true that the floor of the diaphragm, instead of being arched as in an ordinary state of relaxation, remains plane during the efforts of inspiration, with the glottis closed; but this is from the mechanical distension of the chest by the contained air, not from an active contraction of the muscle itself. Besides these actions which are involuntary and reflex, the patient voluntarily aids in fixing the thorax, by holding some fixed body with her hands, or planting her feet firmly. More than this, she increases all the expiratory actions by strong efforts of the will, and by that emotion of labour which impels her to brave every suffering to effect the birth of the child. At length, when the pain can no longer be borne, the short gasp or groan is exchanged for a cry which dilates the glottis, and the pain and contractions subside. This cry is a motor action, excited by the emotion of pain, and instantly relieves the uterus of all extra-uterine pressure. Thus, the glottis may be compared to a safety-valve, which is thrown open by emotion whenever the pressure becomes more than can be borne with safety. By the influence of volition we have this valve entirely under our control, to open or close it as may be necessary. When the expiratory ac-

tions are weak, we can enjoin the patient to hold her breath, and when they are too intense and too long continued, we can encourage her to cry out, which is of course equivalent to dilating the glottis, and expiring the contents of the thorax. During all this time the uterus contracts powerfully. The dilatation of the perinæum is an important part of this stage of labour. In a former lecture I pointed out the provisions which exist for the dilatation of this part of the parturient canal in the arrangement and attachments of the perineal muscles. The dilatation, thus favoured, is effected by the wedge-like action of the head. Throughout the whole of labour the passages are plentifully lubricated by the bland alkaline mucus secreted by the glands of the canal of the cervix.

In the Stage of Expulsion, the different parts of the fœtus are successively expelled through the ostium vaginae, the outlet formed by the vulva, the pubic arch, and the perinæum.

This stage of labour is the shortest of the whole progress, but it is the most important and decisive of all. The actions of the propulsive stage continue with unabated vigour. The uterus contracts with full power, and the respiratory muscles act with immense force. The intervals between the pains diminish as the close of the struggle approaches; and there is often a perfect storm of uterine contractions, without sufficient intermission to enable us to say distinctly where one pain ends and its successor begins. When the fœtal head is actually passing the ostium vaginae, a new set of actions make their appearance. The perinæum, after being distended to the utmost, is now retracted over the head by the action of the levatores ani; the sphincter ani and sphincter vesicae dilate suddenly, the vagina contracts upon the advancing mass, and the head glides rapidly into the world. The dilatation of the two sphincters, between which the vagina is placed, compensates admirably for the absence of a perfect sphincteric muscle at the outlet of the parturient canal. The effect of this double dilatation is, that at the precise moment when there is the most imminent danger of laceration, there is a sudden and considerable removal of tension from the parts endangered. The dilatation of the sphincters is partly dependent on the sensation and emotion of severe pain, and partly on the reflex dilatation peculiar to the sphincteric muscles. This view of the subject gives importance to the defecation, which frequently occurs at this time, and which has been looked upon only as a disagreeable *contretemps*. Physiology here, as in many other instances, transmutates the meanest actions of the economy, and renders them noble by virtue of their uses. At the same moment that the orifices of the rectum and bladder are thrown widely open, there is generally a dilatation of the glottis. Even from women who restrain the expression of their emotions during the rest of labour a cry of pain escapes at this juncture; this cry is necessarily accompanied by an open state of the glottis. The opening of the glottis is not at all accidental or voluntary, but is as regular and involuntary as its

closure during the propulsive pains. Its effect is suddenly to take away the expiratory pressure from the expulsive action. Without this combined action of the glottis, and the sphincters of the rectum and bladder, for the defence of the ostium vaginae, recto-vaginal laceration must be a more common accident of parturition. Such would inevitably be the frequent result of closure of the abdominal and thoracic cavities at all points, except that of the point of exit for the fœtus, in the final throes of labour.

Altogether, it must be conceded that parturition is the most voluminous of all the motor functions. The human uterus contracts sometimes sufficiently to render the hand of a strong man powerless. In order to illustrate the wonderful muscular power of the heart, the circulation in the whale or the elephant is often referred to by physiologists; but enormous as is the power of the heart, in these animals, the parturient actions by which they bring forth their enormous young, give us the most colossal idea we can entertain of any single muscular action. In the human subject, too, there is a certain grandeur in the combined efforts brought into play in parturition. In women, even of moderate strength and stature, every voluntary muscle of the body is in strong action; the excito-motor force is in a state of the greatest activity; the uterus, unseen, and without any participation with the will, is making its immense contractions; and emotion imparts strength to both voluntary and reflex actions.

A temporary calm follows the energetic actions which issued in the delivery of the mother. After the excessive action, in which nerve and muscle seemed strained to the utmost pitch, there comes a sudden and profound repose; there is perfect freedom from pain; every fibre is relaxed; only the uterus now contracts of all the muscles which were so lately struggling. Like some ship which turns from a tempestuous sea into a safe and quiet harbour, the new mother passes from the storm of childbirth into the tranquil haven of maternity. In the pathetic words of Scripture, "A woman when she is in travail hath sorrow, because her hour is come: but as soon as she is delivered of the child, she remembereth no more the anguish, for joy that a man is born into the world."

In the Supplemental stage, the placenta is detached and thrown off, and the uterus contracted, so as to prevent the occurrence of hæmorrhage.

While the body of the child is born by the motor actions I have been describing, the contracting uterus follows closely upon it in its decent, and the action of the uterus, excited at this time from the immense irritation of the vagina by the advancing fœtus, is frequently sufficient to throw off the placenta, and lodge it in the upper part of the vagina. When the placenta is not separated in this way by the last expulsive pain, it remains quietly in the uterus until the appearance of the first after-pain. During this interval the uterus contracts with tolerable firmness, under the influence of the excitement of the act of expulsion. If the placenta has been expelled into the vagina, its presence in this

situation excites, after awhile, bearing-down pains and contraction of the vagina, similar to those of propulsion and expulsion, only far more inconsiderable, generally requiring slight traction of the cord to complete its removal. When the placenta remains in utero, it becomes separated from the uterine surface by the contractions of the uterus, and by the arrest of the circulation in the umbilical cord. It is then removed by a miniature copy of labour itself; there is a dilatation of the os uteri, and there are the propulsive and expulsive actions of the uterus and the expiratory muscles on a small scale.

After the expulsion of the fœtus, the first act of the uterus is to contract, so as to prevent the occurrence of hæmorrhage. This contraction is induced, in the first instance, by the concluding irritation of the vagina and perinæum on the exit of the fœtus. It is subsequently ensured by a succession of stimuli. Of these some are uterine, others are extra-uterine. The bulk of the placenta and membranes irritate, in the first place, the now contracted uterine surface. When placental separation has occurred, the abraded surface of the uterus is intensely excitor; and as the placental mass passes through the vaginal passage and ostium vaginae, excitation, which insures full uterine contraction, is supplied. It is a peculiarity of the utero-vaginal canal that at the termination of labour all the surfaces are more instantly excitor, and the answering motor contractions become rapid and more easily provoked. During severe labour, irritation of the os uteri, or of the vaginae, will often increase the pains only in a moderate degree; but now the introduction of the hand into the vagina, and irritation of the os uteri, will excite instant and forcible contraction of the uterus. The extra-uterine exciters of uterine action also come into play in a remarkable manner. As soon as the child is put to the breast, the slight irritation of the mammary excitor nerves excites distinct contractions of the uterus. This reflex relation from the breast to the uterus continues for several days after parturition, until, in fact, the uterus has returned to the natural state. As soon as the secretion of milk is established, there is, at every afflux of blood to the breasts causing the sensation termed by women "the draughts," an answering contraction of the uterus. A reflex relation between the stomach and the uterus is also now set up every time the patient drinks her gruel, or takes her tea, sharp contractions of the uterus, after-pains, in fact, are excited. Emotion is another aid to the permanent contraction of the uterus. Any emotion of the mind will generally produce an after-pain, but the maternal emotion especially. The emotion produced in the mind of the mother by suckling her infant induces contraction. A day or two after labour, merely presenting the infant to the mother without its actual application to the breasts, will excite the sensation of the draught in the mammae, accompanied by a sudden secretion of milk and also by contraction of the uterus. Thus the close of labour, the return of the uterine system to the quiet of the unimpregnated condition, is as plentifully provided for as the commencement, or any of

the various stages of the process. For some days after labour the contraction of the uterus is of an active sphincteric kind, but its vascular and other tissues rapidly diminish in size, and it soon becomes, to a great extent, a non-motor organ, as it was before the time of conception.

Clinical Remarks

ON A CASE OF

SEVERAL CONSECUTIVE ABSCESES

AND

MORBUS BRIGHTII.

By WILLIAM COULSON, Esq., F.R.C.S.,

SURGEON TO ST. MARY'S HOSPITAL.

JOHN K——, aged thirty-seven, married, a rather tall thin man, was admitted into St. Mary's Hospital, February 9th, 1855, under the care of Mr. Coulson. His occupation is that of a coach porter and cleaner of harness, &c.

Previous History.—When a child, had typhus fever. At sixteen years of age he had an attack of gonorrhœa, and, soon after, a chancre; but no secondary affections appear to have followed. The mouth was not made sore. Six years ago, a succession of boils made their appearance on the back and arms, on which account he was laid up for six weeks. With these exceptions, his previous health had been good. Eighteen months ago, without previous indisposition of any kind, an abscess formed on the tip of the right thumb. He believes that a small scratch existed there previously, and that the thumb had been poisoned by some substance introduced accidentally while following his occupation. Disease of the phalanx followed the formation of this abscess. The bone was removed, and the wound healed. The other thumb now became affected in a similar manner: and the sore remaining did not heal for some time. After this, sore-throat and huskiness of the voice was noticed. An abscess formed below and beneath the angle of the right side of the lower maxilla. The abscess attained some size, prevented deglutition to a great extent, and was finally opened. The sinuses left behind were a long while healing. This attack was soon followed by another formation of matter in the neighbourhood of the rectum. The matter suddenly burst into the rectum, and was thus discharged. For two weeks a discharge from the rectum continued. The formation of these abscesses was, in all cases, attended with severe throbbing pain, cold sweats, and rigors. From these attacks he apparently recovered, and followed his business for six weeks, when a swelling made its appearance at the lower part of the left forearm, both front and back. The sores resulting were healed in about three months from the commencement of this attack. Matter was next formed at the left side of the neck, below the thyroid

cartilage, and a considerable discharge followed. He then became a patient at the Margate Infirmary, and remained there from September, 1854, to January, 1855. The abscess at the side of the neck healed during his stay there. In October last, the patient underwent again the pain attendant on the formation of these abscesses. The abscess which was now formed was situated at the outer side of the right leg. It was not large, and soon healed. On being discharged from Margate, he came to London without having, as it proved, been cured of the disease; for the inner part of the leg began to swell, the enlargement extending from near the knee to some distance down the leg. This abscess was opened, and it is now quite healed. About a fortnight ago, he became suddenly conscious of a severe pain on the right side of the head; and, since that time, the pain has existed almost without intermission night and day. Soon after this, a numbness was felt in the left thigh.

His present condition is as follows:—There is an opening at the inner side of the right leg, discharging matter. He complains of severe pain at the right side of the head above the ear, which is of a fixed nature. There is a slight pain complained of in the left thigh; he is unable to walk. The face and body generally are pale and anæmic; he has lost flesh lately. Iodide of potassium in decoction of cinchona was prescribed for him, three times a day. The thigh to be covered by a poultice.

February 15th.—There being a slight amount of feverishness, he was ordered to take one ounce of saline mixture, with sulphate of magnesia, three times a day.

27th.—The pain increases in the left thigh, and there is now observable a slight degree of swelling at that situation, soft and tender to pressure. The pain in the head continues. The pulse is tranquil; rather weak. Bowels open every day; cannot get out of bed or stand; appetite bad; he takes very little but beef-tea.

March 3rd.—Ordered chlorate of potash, five grains, three times a day.

5th.—For the last three days a swelling has been noticed at the situation of the pain on the side of the head. The swelling is above and behind the ear; it is soft and fluctuating, and covers about three inches square; pressure productive of pain. The pain in the head as before; the tongue presents brown fur in patches; the urine was found to contain albumen in tolerable quantity.

8th.—Pain very severe both in the head and in the thigh; the patient gets very little sleep.

10th.—The abscess on the side of the head was opened, and gave exit to some matter. An incision was also made into the swelling in the thigh, but very little matter was found. The incision in the thigh was filled with lint, and left open. Two days after this the patient had slept better, and the pain in the head and thigh had undergone considerable mitigation.

13th.—A probe passed in at the wound above the ear encounters exposed bone. The denuded

bone is about as large as a shilling. A counter opening was now made at the depending portion of the abscess, and a few threads passed through in order to prevent the wound from healing, and favour the escape of discharge. A few small clots were contained in the abscess, and let out. Ordered to take again the chlorate of potash, which had been omitted, and to take also ten grains of Dover's powder at bedtime every night.

15th.—Headache nearly gone. The wound in the thigh only discharges to a trifling amount; the swelling continues to increase. There is obscure fluctuation, considerable tenderness, and there is evidence of impeded circulation in the part; the veins traversing the skin above are enlarged.

17th.—A long and deep incision was made across the centre of the abscess in the thigh, and much matter evacuated.

21st.—A further and large evacuation of matter from the opening in the thigh took place, which was followed by a sense of comparative ease. The patient is very weak and reduced by the continual suffering he has undergone. His appetite is better than it was.

27th.—Discharge still considerable from the thigh. The abscess in the right leg is not yet quite healed; the abscess of the head discharges a good deal: the skin over the sacrum is a little reddened. A solution of gutta serena was ordered to be painted over it. The face is flushed; the appetite improved.

April 7th.—The abscess in the thigh showing but little tendency to heal, strapping covered with calamine ointment was ordered to be carefully applied round the thigh, in order to bring the walls of the abscess into coaptation.

25th.—Wound in the thigh healing; there is very little pain complained of.

May 12th.—An abscess is forming near the anus, over the right tuberosity of the ischium. A week after this the abscesses broke and discharged a tolerable quantity of matter.

June 4th.—The poor man's strength is evidently failing at last, under the influence of the continued suffering he has undergone. The urine is highly albuminous. Ordered to take dilute nitric acid, with cinchona, three times a day. There is a tendency to diarrhoea.

12th.—Leg discharges still considerably. The patient is weak and pale.

18th.—There is to-day an enormous swelling of the scrotum, due entirely to œdema of the cellular tissue. The two lower extremities are also œdematous and swollen. Urine passed in considerable quantity, but of low specific gravity. For the last few days there has been a slight but constant diarrhoea, for the relief of which several remedies have been prescribed with but temporary success.

20th.—The swelling of the lower extremities is now very considerable.

28th.—The quantity of urine passed per diem less. Symptoms as before, but the strength of the patient is very much reduced.

July 1st.—Since the last report a gradual change

for the worse was noticed. Death took place at ten P.M.

Autopsy, July 2nd, fourteen hours after death.—Weather very warm and dry. The body very pale and bloodless; lower extremities very cedematous, especially the left. There is a small opening on the upper and inner part of the right leg, the periosteum beneath is very much thickened. The left thigh also presents a small opening, continuous with a cicatrix three inches long. The muscular structure of the thigh is very much atrophied, and in part replaced by fatty structure; the sartorius is exceedingly small. The meshes of the cellular tissue are full of serous fluid. There is an abscess at the base of the scrotum, on the right side, very near the rectum, which does not communicate with the interior of the pelvis. On the right side of the head, above the ear, is an abscess, containing a little pus. The scalp is separated from the bone over a surface of two or three square inches, the bone being quite white over this extent. The skull-cap was very adherent to the dura mater on the right side. On detaching it the following appearances presented themselves:—The posterior border of the right parietal bone is much diseased; the bony tissue is removed in places by absorption, and there is one opening, of the size of a small quill, passing completely through the thickness of the bone; the surface of the bone presents patches of reddish, soft material easily scraped away, by which process little pits are produced, having irregular, sharp edges. The internal table is destroyed over a surface the size of rather more than a five-shilling piece, and small laminæ of it are adherent to the dura mater. The surface of this portion is internally covered with pus, contained in a small cavity formed by the bone of the dura mater, and communicating externally, through the aperture in the bone, with a cavity of the abscess above and behind the ear. A part of the internal table is replaced by a soft red structure, lying in patches on the internal diseased surface of the bone. The dura mater is much thickened where it covered the abscess inside the skull, but there is no opening in it, and the internal surface of the dura mater is smooth and healthy. The brain, firm and healthy; plexus choroides, vascular ventricles contain no fluid; a small quantity of serous fluid in the cavity of the arachnoid; glandulæ Pacchioni large and very numerous. Lungs nowhere adherent; the lower border of all the lobes emphysematous; no deposit of any kind in either; the right weighs sixteen ounces, the left nineteen; two or three ounces of fluid in each pleural cavity. The heart contains, on the right side, a thin coagulum, and much very liquid, thin blood; there are small, white, fibrinous clots in the aorta; the endocardium in the left ventricle is of a dull opaque colour, as are also the aortic and mitral valves, the latter a little thickened; the muscular structure of the heart rather friable, and too easily torn up; the pericardium contains one ounce of serosity; the heart weighs nine ounces and a half. The abdomen contains about two pints of a clear, serous fluid. The peritoneum of the intestines is of a dull

white, and looks as if macerated; there are no flakes of lymph observable. The liver is large, pale, and bloodless; the gall bladder three times the usual size; the liver weighs, with gall-bladder, sixty-seven ounces. The intestines and stomach present nothing remarkable. A tolerable quantity of fluid and gas in the intestines.—Kidneys: Both very large; capsule tears readily, without removing any cortical substance; colour, externally, dull yellowish. Section shows cortical substance everywhere replaced by a dirty yellowish substance three times thicker, in places, than the cortical substance should be; exhibiting, in fact, a marked degree of fatty degeneration. Examination of these portions under the microscope exhibits detritus composed of fat particles and variously-shaped small cells; no perfect tubules to be seen. The tubular structure of the kidneys is, in part, apparently healthy; portions of it, as well as the cortical structure, have undergone the degenerative process; a puriform fluid is expressed on squeezing the tubular substance. Right kidney weighs eight and a half ounces; left eight ounces. The bladder very contracted; only two ounces of urine. The urine is of a deep amber color; contains a large quantity of albumen, no sugar; slightly acid to litmus-paper. The spleen presented nothing worthy of note; weight seven and a half ounces. The blood taken from the right auricle was examined under the microscope: the red corpuscles were rather less round than usual, the outline of some being a little corrugated; a few large corpuscles, containing nuclei, and larger than the pale corpuscles of blood, were observed. Nothing unusual was exhibited on the addition of acetic acid or other reagents. This examination of the blood was made by Dr. Graily Hewitt, eighteen hours after death had taken place.

After having read the above case, Mr. Coulson proceeded to make the following observations on it, premising that they would chiefly refer to the subject of abscess. These collections of matter presented themselves under various forms. There was the acute abscess, accompanied by inflammation, and running its course rapidly. There was chronic abscess, in which the inflammatory action was less marked and the duration of the disease more prolonged. There were many other kinds, but in these cases the collections of matter were single, and depended for the most part on local causes. It is not (continued Mr. Coulson) to abscesses of this kind that I now desire to direct your attention; you will meet with such every day, and they are fully described in all our elementary treatises on Surgery; but every now and then, in going round the wards of this hospital, you will meet with cases which have not been so well described, and which are often involved in much obscurity. In the cases to which I now allude, the whole disease appears to be made up of the formation of abscesses in different parts of the body. The disease is evidently constitutional, not local. It has received several names; sometimes it is called chronic abscess, sometimes cold abscess; but as the essential character of the affection con-

sists in the successive formation of abscesses in different parts of the body, the best name, I think, we can give it is that of "successive abscess." "Multiple abscess" has also been used, but this term does not indicate the principal character of the disease, which, as I have just said, is the successive deposition of purulent matter in various parts of the body. Thus in the case of John K—, the first abscess formed beneath the lower jaw; when this healed, another abscess formed in the neighbourhood of the rectum. They were succeeded by collections of matter on the front and back of the arm; on the side of the neck; on the leg; and finally on the side of the head. The abscesses in these various situations were not formed simultaneously, or even at short intervals; but when one healed, another broke out after a certain lapse of time, and their formation extended over a period of eighteen months. Cases of this kind are not very frequent, but they present themselves every now and then in all large hospitals, and they suggest several questions of interest. What is the nature of these abscesses? On what cause do they all depend? How are they to be distinguished from other collections of matter? and, What treatment should be opposed to them?

Before I enter on these points, however, I must give you a description of these abscesses; for they have several characters which are peculiar to them. They are seated in the subcutaneous cellular tissue, though in some cases they occupy the intermuscular cellular tissue; and they are often accompanied by effusions of pus into the joints. They are commonly of large size; there is no inflammatory swelling about them, such as we observe in ordinary abscess; no soft point in the middle, with a circumscribed hardness all around. Their progress is peculiar. In some cases, a fluctuating tumour is the first thing noticed, for the abscess is completely formed without any of the ordinary local signs. The matter would appear to have been suddenly deposited in the spot which it occupies; but we know that this is not the case, by observing the way in which the succeeding abscesses are formed; the deposit is so gradual and indolent, that it attracts no attention. Generally speaking, however, we can trace its gradual formation. There is at first some slight tumefaction of the part; this increases slowly, until it becomes a fluctuating tumour, elastic at first, and then soft; there is no heat or change of colour in the skin; little or no pain; little or no tendency to the ulcerative inflammation by which the contents of ordinary abscesses are brought to the surface; the swelling gradually enlarges and softens, until at last the skin gives way, and the matter is discharged. The contents of the abscess are peculiar; that is to say, the pus commonly differs from that secreted by the walls of an ordinary abscess. It is not homogeneous, but appears to be made up of the mixture of two fluids, and this seems to depend on a tendency in the purulent matter to separate into two parts, one composed of a serous fluid, the other collected into soft, gelatinous masses, which have a curdy appearance. There are, how-

ever, many exceptions to this general character of the pus, and I would not have you attach too much importance to it.

(To be continued.)

Original Papers.

ON THE PATHOLOGY AND TREATMENT OF UTERINE DEVIATIONS.

By E. J. TILT, M.D.,

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CAUSES OF UTERINE DISPLACEMENTS.

THE enormous distension of the vagina by parturition is the principal cause of prolapsus; for not only is the vaginal column weakened, but the muscular perineal floor in which it is set is often much weakened by over-distension, if not by laceration. Having thus lost its tone, the perinæum no longer sufficiently antagonizes the diaphragm, and the womb is steadily pushed down the vagina. The additional impulse determined by any kind of over-exertion, by violent fits of laughter or of coughing, will expedite the result; and the more shallow the pelvis, the shorter will be the vagina, and therefore the more easily will the womb be forced through it. Abortion leads to prolapsus in the same way, and prolapsus occurs in the unmarried because menstruation is a powerful cause of all uterine displacements. This would have been better appreciated, had those who have written on the subject borne in mind that menstruation is the prototype of parturition, and in every respect a miniature parturition. The womb, the vagina, each portion of the generative intestine, is abundantly congested with blood for about a week in every month; a substance is expelled—expelled by forcing pains, which faithfully represent the more energetic pains of labour. Thus the process of menstruation relaxing the vagina, and rendering the womb more weighty, favours its tendencies to prolapsus, which will be sooner effected in proportion to the frequency and intensity of the forcing pains.

A liability to uterine displacements is also the result of most diseases of the reproductive organs. The morbid stimulus favours the congestion of the whole generative intestine, relaxing the vagina, and adding to the weight of the organ which it was intended to support.

With regard to very marked cases of ante flexion and retroflexion of the womb, I believe, with Jobert de Lamballe, and Caseau, that many of them are congenital. Malgaigne, in a case inspected after death, found that the body and neck of the womb were folded on each other like the leaves of a book; but when put in the right position, it was maintained. Sometimes the retroversion of the womb, also, causes its body to bend on its neck; continued pressure causes actual loss

of substance in the parts involved in the flexure; they may become atrophied, and the flexed point is reduced to a mere fold or hinge. In other cases, on the contrary, the flexed parts have been found softened and hypertrophied. Inflammatory action causes interstitial deposit, the flexure is more curved, and the infirmity becomes permanent. These anatomical conditions have been found chiefly in women who had borne children. These changes depend sometimes upon irregular involution of the womb after parturition, causing the permanent retraction and atrophy of some of the muscular fibres, and the permanent enlargement of other portions of the womb; hence a loss of the balance usually existing between the body and the neck of the womb, and the bending of one on the other, from causes which otherwise would not have produced this effect. Softening and hardening of the uterine tissues at the point of flexion may be caused by partial post-partum inflammation of the muscular tissues of the womb. Guérin has shown how certain deformities were caused by the inflammation and subsequent retraction of some muscular fibres; and it may be admitted that sometimes limited patches of inflammation in the muscular structure of the womb determine permanent deformity of the womb, by the retraction of some of its muscular fibres. The womb is thus less able to meet the pressure of the adjoining viscera, and thus the uterine deformity is increased. The frequent, obscure, and often undetected inflammation in the uterine tissues subsequent to abortion, sufficiently accounts for the frequent occurrence of flexions. The uterine deviations occurring in the unmarried can only be accounted for by the ever-recurring process of menstruation and by the frequency of uterine inflammation. The coincidence of deviations with inflammation of the lining membrane of the body of the womb has been noticed by many, and I may add my testimony to that of Paul Dubois, Cruveilhier, and Robert.

The higher the position of the womb, and the more moveable it is, the more liable will be the body to bend on the neck of the womb, so that uterine flexions are most likely to occur in women in whom the pelvis is deep and capacious. When the womb is deviated *in toto*, it may be the result of a congenital disposition of the pelvic organ. Morgagni found the uterus forcibly deviated to one side of the pelvis, by the diminished length of the corresponding broad ligament; there was no tumour, no trace of previous inflammation to explain what must therefore be considered a malformation, another instance of which has been lately recorded by Dr. West. The lateral flexion of the womb was produced by the absence of the round ligament in two bodies examined after death by Huguier. Such cases are, however, rare. Retroversion, as well as prolapsus, is frequently met with. It is the normal position of the womb to be somewhat retroverted during the first months of pregnancy. The most serious cases of retroversion were, I believe, first explained by W. Hunter. About the third or fourth month of pregnancy,

when the womb becomes completely retroverted, it is then just large enough to be jammed in between the sacrum and the pubis. Insurmountable constipation, and the impossibility of passing urine, render it urgent to replace the womb in its right position, and its further increase of size is sufficient to prevent the recurrence of retroversion. Such cases are very rare, but we may safely say that the womb, after parturition, has a tendency to be retroverted. This is favoured by the relaxation of the various connexions which kept the virgin womb in place; whereas stronger bonds would be necessary to support the additional weight of the womb after gestation.

Retroversion is, however, frequently observed in the unmarried after uterine disease of long duration; after violent efforts; after a fall on the sacrum; after prolonged fits of laughter; after, in fact, any violent or sudden pressure to the abdominal organs. These exciting causes of retroversion are exactly the same as those which cause prolapsus, so the mechanism of retroversion should be sought for in its predisposing causes.

I stated that in those subject to prolapsus there was often a short vagina; a short straight sacrum; a shallow pelvis; whereas retroversion is generally observed where the pelvis is deep, the sacrum long and greatly curved, and the vagina long and more than usually curved, so that the womb is borne up higher than usual. The anterior wall of the vagina, and part of its lateral walls are firmly attached to the pubic arch, and it is obvious that for the vagina to be long and curved there must be considerable development of its posterior wall. Now, if retroversion occurs, it depends not only on the womb being over-weighted, but because something has debilitated the posterior wall of the vagina. What is it that weakens the long vaginal column? In pregnancy, this is evidently the result of increased size of the vagina, having for its object the possibility of the child's safe passage through a narrow channel. In abortion and in menstruation the same explanation holds good to a limited extent. What is thus done by a physiological process, is likewise effected by a morbid process; and in chronic affections of the womb and vagina it is found over-relaxed and greatly dilated, while no corresponding alteration takes place in the length of the anterior wall of the vagina. We have, then, a womb placed higher up than usual and less forcibly retained in place by local connexions, therefore more mobile than usual, poised on a vaginal column the posterior portion of which is less solid than usual; retroversion is impending, and it will occur in proportion to the intensity of the exciting causes already mentioned.

If the womb is kept in position by the pressure of the bunch of intestinal folds on its posterior surface, then retroversion ought to be produced sometimes by prolonged dorsal decubitus, in which the inflated intestines will tend to rise above the womb, and to depress it gradually lower and lower. In two patients, for whom prolonged dorsal decubitus was necessary for the cure of fractures,

Huguier found the womb lying flat on the pelvis, under the intestines; and Robert also cites two cases of complete retroversion of the womb in two women who were obliged to lie long on their backs, one for paraplegia, the other for typhus fever. It will be easily understood, that if the mesentery, from which depend the intestinal folds, or the folds themselves, are shorter than usual, the displacement of the womb will be facilitated. The *modus operandi* of a fall, in producing retroversion, deserves our attention.

I was once called in to see a poor woman who had left her bed the day after her confinement, and who fell down upon her back. This was followed by great abdominal pain, and an inability to pass urine. On examination, I found the womb in complete retroversion. After placing her on her hands and feet, I introduced the whole hand into the vagina, and replaced the womb. This fall on the sacrum caused the weighty womb to be suddenly displaced, and the passing of the womb under the intestines was facilitated by the relaxed state of the abdominal walls.

An unmarried lady called on me a few days ago, and related that a few years previous, after unusual exertion, she felt something give way within her; that ever since, when not in bed, she has suffered more or less from pains in the back, and in the inguinal regions, with constipation, or urinary disturbance, and the inability to walk. On examination, I found the womb retroverted. If the ligaments of the womb really retained it in position, a fall on the sacrum, or a great muscular strain, might impart a concussion, but would not cause any displacement; whereas, if we can better understand that by a fall on the sacrum the more solid womb may be suddenly impelled under the half-inflated intestines, and there remain, one can likewise understand how, on a woman making some sudden strain to take hold of an object high placed, the solid womb may be forced to pass under the intestines. The sensation felt by the patient is as if something had suddenly snapped within the body—as if something had given way. This is caused by no rupture of a ligament, for such rupture has never been found, but by the sudden displacement of the womb; and on replacing this completely retroverted womb, in the case already alluded to, I felt the womb return so quickly to its right place as if by a kind of suction, that my first impression was that I had perforated the intestine.

If these sudden displacements of the womb involve mechanical considerations as yet obscure, there is another evident cause of uterine deviations, which has been too much lost sight of—that of pelvic inflammation.

I appeal to your own recollection, whether pelvic inflammation and partial pelvic peritonitis are not frequent after miscarriage and parturition? Many such cases are not distinctly recognised by the medical adviser—many never come under his observation. Nature, in most constitutions, effects a cure, but the consequences are often ever after felt by the womb. In visiting, some months ago,

the wards of Drs. Trousseau, Aran, Bernutz, and other medical men of Paris devoting attention to diseases of women, I was forcibly struck with the number of patients suffering from some pelvic inflammatory swellings. Many anatomo-pathologists have likewise noted the frequency of the sequelæ of peritonitis in the pelvis; and lately Bonnet, the celebrated surgeon of the Hôtel Dieu, at Lyons, has asserted that, after examining the state of the pelvic organs of all those dying at that vast hospital, he found that in four out of five who had complained of what are commonly called uterine symptoms, there was pus or thickening and false membranes about the broad ligaments, causing deviations of the womb which no pessaries could correct. This cause of uterine displacements has been alluded to by Prichard, by Dr. Oldham, and Dr. West, and very recently by Dr. Aran.

It may not be out of place to observe that the pathology of uterine deviations cannot be completed until the knowledge of pelvic diseases is still further advanced. This is the present direction of medical efforts, at least in France and England. The late researches of Nelaton and Viguer on sanguineous pelvic tumours; of Valleix on peritoneal phlegmon; of Bernutz on retained menstruation; of Charles Bernard on ovaritis, in connexion with disordered menstruation,—sufficiently prove my assertion; and I hope that I have somewhat contributed to elucidate an obscure subject by my contributions to ovarian pathology during the last eight years.

Matrimonial intercourse is certainly a cause of anteversion of the womb, particularly when the pelvis is shallow and the vagina short. This cause had escaped notice until it was pointed out by Dr. Rouband, and Dr. Bennet and Dr. West have lately insisted upon its influence.

If the increased weight of the womb, by gestation or parturition, contributes to produce retroversion, it will be evident that whatever increases the weight of the womb beyond certain limits will produce the same result. The swelling following inflammatory affections of the womb must therefore be admitted as a cause of retroversion or anteversion. It would be difficult to understand how so simple a proposition can have been lately denied, because Velpeau proved long ago that inflexions of the womb were frequent and had been frequently mistaken by Lisfranc for engorgement of the womb. Velpeau lately affirmed that there is no such thing as a partial swelling of the womb by congestion of blood. I still believe that I frequently meet with this condition; and, admitting that I have been deceived in supposing that a uniformly swelled womb was larger than it ought to be, a well-educated finger cannot have betrayed me, when I feel on one side of the posterior wall of the uterus a distinctly marked elevation. Velpeau says, "show me the uterine swelling on the dead body." He might as well have asked for the anatomical lesions of many cutaneous diseases, when death has extinguished the morbid stimulus which drew and retained blood to limited spots of the skin.

If my memory serves me rightly, a French surgeon of distinction once extracted, as cancerous, a womb which was only engorged. Engorgement of the womb is a frequent cause of retroversion, and this in its turn increases the engorgement, by causing mechanical impediments to the venous circulation. In the same way retroversion will induce rectal and vesical tenesmus, and these instinctive propelling forces energetically contribute to the displacement of the womb.

SYMPTOMS, DIAGNOSIS, AND PROGRESS OF UTERINE DEVIATIONS.

The latest works on uterine deviations include a very long account of symptoms. It seems as if the authors had ransacked works on uterine pathology to discover all the possible symptoms of the various forms of uterine disease. Dyspepsia, intercostal neuralgia, partial paralysis, hysteria, have all furnished symptoms which have been adopted as the symptoms of uterine deviations; and mental derangement has been accounted for by a twist in the womb. If writers have done so, it is because there are no proper symptoms of uterine deviations; and in their anxiety to enlarge their subject, they have been led to refer to uterine displacements all the symptoms of the uterine diseases by which they are often complicated.

In asserting that there are no pathognomonic symptoms of uterine deviations, I only assert for uterine deformities what is admitted for spinal and all other deformities of the human frame. The symptoms most complained of by women are sensations of uneasiness, or weight, at the lower part of the body, with bearing-down sensations towards the anus. There may also be pains in the back, in the inguinal regions, or in the inner part of the thighs. These pains are much increased by walking: over-walking renders them intolerable, while the reclining posture relieves, and often lulls them completely. Partial paralysis of the lower limbs, and all the nervous symptoms produced by uterine diseases, are often noticed. Constipation and urinary disturbance may also exist. Disturbance of the menstrual function is also not uncommon. The discharge is either too abundant, too scanty, or too painful. These symptoms are more constant in extensive retroversion, and occur now and then in cases of uterine inflexion, which are in general harmless, as stated long ago by Velpeau. The pendant portion of the womb becomes irritated from some unknown cause, then the return of blood becomes more and more difficult; and with this state of congestion, menstruation becomes morbid. It will be easily understood that the menstrual process may occasion all the suffering of deviations, and I have met with cases where the deviation was never painful, except at that time. In asserting that sterility is frequently observed when the womb is deviated, I think that writers have rather expressed a preconceived notion than real facts. This is a fit object for statistical inquiry.

Such are the symptoms of uterine deviations; but exactly the same symptoms often constitute

those of early pregnancy, of miscarriage, of many uterine affections; or even some women will present these symptoms without it being possible to trace them to any structural change of the womb, whose nerves are alone affected, as in uterine neuralgia or hystericalgia. At the same time, it is now admitted by almost all authorities, that the womb may be bent in various ways, and anteverted or retroverted to a considerable extent without determining any symptoms. This I daily find to be the case; and in lately discussing the subject with some of the Paris physicians, who, like Dr. Bernutz, at the Hôpital de l'Ourcine, have vast opportunities of observation, I found that they also had been led to the conclusion that uterine misplacements gave rise to no suffering, unless they became complicated by some uterine affection. In Germany the belief in the innocuity of uterine deviations is so gaining ground that it has been actually proposed to induce retroflexion of the womb by means of the uterine sound in order to cure prolapsus.

There are, then, cases of uncomplicated uterine deviation, and they are of very frequent occurrence, because the final destination of the womb necessitated such arrangements as would ensure to it the greatest possible latitude of movement in the midst of organs which receive support and a healthful stimulus from such movements—organs so constructed as not to feel pain, or to have their functions disturbed, by some slight alteration in the shape or position of the womb. Uncomplicated deviations are only accidentally discovered; the complicated come to us, and are variously examined, interpreted, and treated by medical men. An idea of the complications most frequently met with may be gathered from the statistics published by Dr. Sausier, in a French journal. In 102 cases of uterine deviations he found them complicated by

Ulceration of the os uteri in	67 cases.
Engorgement of the body of the womb in	53 "
" " neck of the womb in	39 "
" " broad ligaments in	68 "
Extreme uterine sensibility in	91 "
Uterine catarrh in	71 "

As I believe that the symptoms accompanying uterine deviations express some complicating uterine disease, it would be out of place to treat of them in detail, with the exception of some which are more frequently complained of. The sensation of a weight, and forcing down towards the perineum, is often complained of: it is not pain, and still it is often said to be more distressing than pain. Theory tells us that this sensation should be most felt in cases of confirmed prolapsus of the womb; but we find that when the womb is visible between the thighs, women complain greatly of exhaustion, incapacity for exertion, but they do not complain of bearing-down pains, and are often able to move about. Theory likewise tells us that fibrous tumours of the womb, by their pressure on the rectum, ought to produce the bearing-down sensations; but very frequently this is not the case. The bladder and rectum are often forcibly pressed

without the patient experiencing any great inconvenience; or, in other words, the sensations of weight are not experienced when the womb is forced through the body, or when it is pressed upon by solid tumours. Women suffering from uterine catarrh, from erosions, from ulceration of the neck of the womb, do not in general complain of forcing-down pains. Women in excellent health often suffer much every month from forcing pains just before the menstrual discharge, and during the first day or two of its flow. These forcing pains are signs of the ovarian nismus compelling the womb to rid itself of blood, and represent the stronger pains by which the womb is forced to rid itself of the produce of conception. Women suffering from habitual congestion and enlargement of some portion of the womb often complain of the sensation of weight. A few minutes after a patient affected with retroversion of the womb has left her bed she will sometimes complain of bearing-down pains, and on examination you will not find the womb more retroverted than when the patient was previously examined in bed; and her sufferings last until she again lies down. Such being the facts relating to this symptom, how is it to be explained?

It is easy to say that bearing-down pains are caused by the dragging of the ligaments of the womb, but as the forcing pains are often absent in prolapse of the womb, when the uterine ligaments are most dragged, this explanation falls to the ground. In women, at the approach of menstruation, in those at least who are affected with chronic congestion of the womb, the forcing sensations are in direct proportion to the determination of blood to the womb. When the forcing sensations occur in women affected with uterine deviations on their assuming the erect posture, they are probably caused by a change in the hydrostatic condition of the womb, and by the over-distension of its bloodvessels deprived of valves.

The continued pelvic pains when the retroversion is considerable may be explained by the stretching of the peritoneum, and by the long-continued strain on the broad ligament. The ovaries are often more or less irritated, in cases of retroversion, by the strain on the broad ligaments, and by some obstruction in their returning circulation. Dr. Rigby has pointed out ovaritis as a frequent result of the long-continued pressure on the left ovary. Dr. Saussier found engorgement of the broad ligaments in 68 cases out of 102, and some of the distressing symptoms attending retroversion are to be referred to those complications. In many cases, the uterine deformity is slight, and still the pains are very severe. Sometimes the same pains exist, without any appreciable alteration of form and structure of the womb. This brings us to the consideration of uterine neuralgia.

Limbs recovering from contusions or inflammatory affections often remain long affected with annoying sensations of distension, heat, itching, or pain. This may be the case with the womb after its inflammatory affection has been cured. There

may remain a neuralgic affection, which must be treated as such. Neither must we ignore the fact that many women suffer much from uterine deviations which are unconnected with any uterine inflammatory lesion. We have thus obtained the fact that the same amount of uterine deviations which will be tolerated by some patients will give rise to serious disturbance in others. This is but a repetition, in uterine pathology, of what holds good with every other organ. The same amount of morbid structure will, at times, be unheeded by the nervous system, while, at others, it will awake a host of nervous symptoms. Thus, in certain constitutions, the uterine deviations so react on the uterine nerves as to induce hystericalgia, a form of what Valleix and Beau have called lumbo-abdominal neuralgia. The nervous symptoms bear no proportion to the amount of the uterine deformity, being sometimes intense when the deviation is slight, or when the deviation is extensive the uterine neuralgia may be slight. The nervous symptoms are often cured by various modes of treatment, while the uterine deviations persist, and will again and again wake up the neuralgia. I said that some women have the neuralgic symptoms of uterine deviations, without any deviation or any other appreciable change of structure, and it may be well to confirm the assertion.

CASE 1.—A young married lady consulted me for continual pains in the sacrum and loins, and for bearing-down pains, increased by the slightest exertion, so that walking had become intolerable to her. Her sufferings had commenced two years ago, after her last confinement. Many persons had been consulted, but they had found nothing the matter with the womb, no organic lesion or deviation; and I came to the same conclusion. Cold-water douches, sedatives, or injections gave little relief; it therefore occurred to me to examine the patient in the standing posture. The womb did not appear prolapsed or deviated, but on raising it with the tips of two fingers introduced into the vagina, the patient exclaimed, "You have taken away all my suffering!" I applied an air pessary, which gave permanent relief to sufferings which had lasted for two years. The pessary was worn for six weeks, at the end of which period the patient was able to discontinue its use. Subsequent examination has not enabled me to detect that the pessary had produced any alteration in the elevation or position of the womb. In this case I was guided by another, previously related to me by Dr. Debout, the editor of the *Bulletin Thérapeutique*.

CASE 2.—An unmarried lady, belonging to a wealthy provincial family, had been literally reduced to the last stage of inanition by continued abdominal sufferings. Dr. Debout took her to several of the first obstetric authorities in Paris. They detected no uterine lesion or deviation; the various methods of treatment advised were of no avail. It occurred to Dr. Debout to examine the lady standing; and on raising the womb, the patient exclaimed, as mine did, "You seem to have relieved me of my sufferings." This suggested the employment of the air pessary, which relieved the

pains, permitted food to be taken, sleep to be enjoyed, and will, in all probability, be the means of restoring to complete health a young lady whose case was almost given over by the faculty. Experienced men could detect no uterine deviation in this case; but by supporting and steadying the womb, its nerves soon lost a habit of suffering, although the neuralgia had lasted for years.

The diagnosis of uterine neuralgia will often remain obscure, because we shall always feel tempted to admit some unperceived uterine lesion; but it is permitted to admit uterine neuralgia when there are distressing uterine symptoms, without any apparent organic lesion, particularly if the patient be prone to nervous affections.

Diagnosis of Uterine Displacements.—The diagnosis of uterine displacements was almost impossible before Dr. Simpson showed the mode of using the uterine sound, and the admirable results to be obtained from a proceeding, the utility of which had already suggested itself to Recamier and Oslander. If, while referring the reader to Dr. Simpson's valuable writings, I caution those beginning practice to use the sound with great discretion, it is not that I undervalue the instrument, but to prevent the occurrence of deplorable accidents. Pregnancy is so easily overlooked or mistaken for a morbid affection of the womb during the first months of gestation, and precision of diagnosis may then be purchased at the expense of abortion. This occurred twice to Nonat, once to Huguier, once to Valleix. For one medical man gifted with the moral courage to own a mistake, it may be safely said there are many who keep it to themselves, so doubtless abortion has not unfrequently been unwillingly brought on since the uterine sound has been popularized, particularly when we remember that it is easy to confound early miscarriage with profuse menstruation. When in Paris, a few months ago, I was informed by a medical man of eminence, that on one occasion, after introducing the uterine sound into the womb, although using it cautiously, he felt that he had perforated the womb, and that the uterine sound had penetrated for several inches into the peritoneum. Slight colics occurred, but no other symptom. The same gentleman mentioned the names of two other eminent practitioners, to whom a similar accident had occurred, without giving rise to any bad symptom. The immunity of peritonitis, in many cases of gastrotomy for the removal of enormous ovarian tumours, enables one to understand why the perforation of the peritoneum was in some cases harmless, but it will not do to rely on similar results in all patients, and I think it right to state facts calculated to impress the necessity of prudence.

Progress of Uterine Deviations.—The progress of those cases of uterine deviations which come under our notice may be inferred from what is known of the march of chronic uterine inflammations, and the uterine affections which most frequently complicate deviations.

The progress of many cases of uterine deviations shows the nervous nature of attendant sufferings,

the symptoms suddenly subsiding, while the deviation remains the same. This sudden subsidence is sometimes caused by a serious illness, a reverse of fortune, or, in other words, an imperative necessity for exertion, and a sudden shock to the nervous system. In other cases, these pains, which keep so many women on the sofa, wear themselves out, and gradually disappear. Few women from forty to fifty consult us for uterine deviations, which still, however, may exist. After the cessation of menstruation, the ovaries cease to be powerful centres of nervous power and periodical centres of attraction for the blood; therefore the womb becomes atrophied, cylindrical, and less weighty, its deviations become less and less apparent, and the vagina has a tendency to contract.

(To be continued.)

REMARKS ON TUBERCULAR DISEASE; ACCOMPANIED WITH A CONDENSED REPORT OF THE HOUSE OF REFUGE FOR FEMALES, GLASGOW, EMBRACING A PERIOD OF TEN YEARS.

BY JAMES MILLER, Esq., L.F.P. & S., Glasgow.

It may be thought that on a subject so thoroughly investigated as tubercular disease little remains to be said; but if the following practical remarks and suggestions contain no novelty, they will serve to place in a prominent and advantageous light the asthenic character of those ailments. It was a remark of one of our ancient physicians that all diseases were curable provided the patient could be kept alive during the treatment. Notwithstanding the paradoxical character of the remark, and the evident impossibility of testing the doctrine by experiment—the period of treatment being indefinite—it involves a truth on which the proper treatment of a vast majority of diseases must be based, and especially those of a tubercular nature: the indication being, to maintain by every means in our power the vital functions in the highest state of efficiency, to enable them to arrest the progress and overcome the morbid condition.

A double variety of means are at our disposal to accomplish this end. The vital energies may be supported, by feeding them with additional supplies, or economized by limiting their expenditure. The first of these, as regards scrofulous diseases, has received the sanction of the profession; at least, there are few who withhold food of the best and most nourishing kind, accompanied with medicine, if necessary, to assist its introduction into the system, and still fewer who have recourse to depressing remedies. The other variety of means is for the most part neglected, and indeed, the fashionable treatment of consumption is the reverse of husbanding the vital forces. The victim of phthisis is recommended to exchange the quiet repose and comforts of home for the excitement of travel and strange scenes. The excess of vital expenditure in those voyages above that of every-day life is underrated both by the patient and his

friends. The excitement of hope, and the anticipation of novelty and adventure, give vigour at the outset to the relaxed frame by a draft on its diminishing resources. Anxiety and physical exertion in preparation for the journey follow, and the discomforts of a land or sea voyage, all of which consist of an expenditure of force, seldom repaid by additional activity in the nutrient functions. A balmy climate receives him, and he breathes an atmosphere less irritating to the air-passages, and that is all. He is fortunate if he is not possessed with the notion that early rising, out-door exercise, pic-nic parties, and walks by the sea-shore, are not essential to the recovery of his health.

A change of climate, especially a removal from one cold, moist, and changeable to one warmer, dryer, and more equable, has always been considered of chief importance in the treatment of phthisis, and the long establishment of that opinion, and the pertinacity with which it is maintained, compel us to admit the existence of some foundation in the results of experience for the belief. But the popular idea that tubercular disease of the chest had its origin in pulmonary congestion and excitement of the bronchial mucous membrane, would render easy of belief any statement respecting alleged recovery by removal from a northern to a southern climate, and the imperfection, until recent times, of the means of diagnosis, attaches doubt to the real nature of a proportion of those cases. But even giving credit to these cases, post-mortem dissections show so many recoveries that have taken place in our own country, that one is at a loss to know whether the successful issues ought not rather to be ascribed to the efforts of Nature than to the salubrity of the climate. There is no doubt that the patient is in some respects more favourably placed in those resorts for the recovery of his health than at home, having resolved to emancipate himself from the cares and anxieties of business and the pursuits of every-day life, and to take his case.

The short-lived celebrity also of the various climates recommended to invalids leads to the conviction that the anticipations formed of them are seldom realized, and that the decline of their reputation is owing to a host of failures consequent upon continued trial.

As the disease is acknowledged to be constitutional, depending proximately on a dyscrasia of the blood, the advantages of a change of climate must be measured by its effects upon the general system, and not on its mere soothing influence on the respiratory apparatus. The most unmanageable of all cases are frequently those in which there is little cough or embarrassment of breathing. And the sanitary value of any county may, I think, be fairly tried by the relative freedom of its inhabitants from the diseases in question. Tubercular diseases are as rife in those countries to which phthisical patients are sent, as in our own islands; and, strange as it may seem, the less-esteemed climates of the north of Europe and America are, by all accounts, the most exempt from these complaints.

I am persuaded that an inquiry into the social economy of those countries, as compared with our own and others like-circumstanced, would throw much light on the origin of these diseases. It would be found that in the countries where they prevail most extensively, such as Great Britain, the United States, and some other mercantile communities, the tear and wear of ordinary life and the strain upon the vital energies are without parallel, whether the struggle be that of ambition, or for wealth, or bread. The last, the most fatal in its results, is exhibited in the mortality returns of the lower classes, most marked in the early periods of life; for with them the struggle commences earliest, and would be much more pronounced if post-mortem examinations were made of all the cases registered under the heads of pneumonia, bronchitis, peritonitis, and epidemics of children. Here the double evil of insufficient nutriment and excessive efforts to procure it, operate on both parent and child.

In the North of Europe and the Canadas, the mental and physical activity of the population is less, and the excessive cold of the winter months creates an annual sabbath and partial cessation from employment, and also renders more imperative than in temperate climates the use of warm clothing, a recourse to artificial heat, and appropriate kinds of food.

In attributing to excess of action and vital expenditure the development of the mass of diseases included in the term *scrofulous*, I am aware I am hazarding an opinion which will not find ready acceptance with those who hold that air and exercise are the means bestowed by Nature upon mankind, for the prevention and cure of all diseases to which flesh is heir, and of which no one can have too much; and will be met by a reference to the sturdy health enjoyed by the labourer and mechanic, who, in accordance with the primeval ordinance, earn their bread by the sweat of their brow; and also to the great liability—scarcely less than in the lower classes of society—of those in comfortable circumstances to the disease. But I speak of an expenditure of force uncompensated for by nutrient supplies, whether caused by deficiency in the supplies, or failure in the nutrient functions. Yet there is, I fear, a fallacy in the conception that the health of the actual working population is a fair index of the order generally. The former are a selection of men who, by dint of naturally powerful constitutions, have weathered the adversities of early life, while a large proportion of their fellows have disappeared from the field of labour, or have never been privileged to enter upon it; and with respect to the better classes of society, they are not exempt from over exertion.

The doctrine of the correlation of forces is at least true of the intellectual, moral, and physical powers of life; and of the three, the two former, when excited to excessive action, are the most baneful, as they soonest interfere with the nutrient functions. The infant at the breast is affected by the frivolous anxieties of the parent to gain a position in the world of fashion; in the nursery the child

is prematurely encouraged to mental application, which, in youths of ardent temperament, suffers no diminution at school and college; and lastly, too frequently the dissipations and vices of the middle and upper ranks of society, are as exhausting to the vital energies as the necessitous toils of their less fortunate brethren.

The view I have taken of the subject is, I think, well illustrated by the striking similarity which obtains in the general histories of the great majority of phthisical cases, to whatever class of society they belong. There is first the almost imperceptible invasion of the disease, perceived frequently by the experienced observer in the features, and general appearance of the patient, long before he acknowledges any ailment, which is at last forced upon his attention by his inability to perform his wonted tasks without increased exertion. He discovers also that his appetite has been for some time on the decline. Either from necessity, encouraging advice of his friends, or a dependance on the strength of his constitution, he determines to drive off the disease by a continuance of his labours, until by incapacity he is obliged to relinquish them. However, the expenditure of vital power is diminished by a cessation from his usual pursuits, and every means is adopted to sustain the sinking frame; strength gradually returns, and the encouraging change is soon seen in his improved appearance. In a few months he returns again to toil—to that of the factory, the counting-house, the university, or to that of the man about town.

After an interval of months or years of comparative enjoyment of health, his strength again fails, attended in most instances with an aggravation of all the more prominent symptoms of the disease. The same process is repeated, and sometimes recovery again takes place under the most unpromising circumstances. He recovers in bed, to the astonishment of his friends, without either the assistance of fresh air or carriage exercise. The respite is, however, transient; for, as soon as his strength will permit, he is again recommended exercise in order to establish his health, in direct repudiation of all that rest, the great restorer, had accomplished. Why interfere with its beneficial operations? Why not let the invalid recline on his couch or bed, take his food and his wine, read his paper, and receive his friends? The thing is almost impossible on account of the anxiety of the patient himself, and the injudicious advice of his friends; for in this railway period of the world's existence the time cannot be afforded.

Is there not in all this an evidence of some intimate connexion between the development and progress of the disease and the expenditure of force—that expenditure being at its maximum at the commencement, and at its minimum when in any of its stages it is arrested.

The voluntary and ganglionic system of nerves receive their energies from the same source—the nutrient apparatus, which, from the necessity of things, can only supply a certain amount of force, which, in the healthy state, must be distributed to

each in certain proportions; too much appropriated by one must impoverish the other. But the ganglionic system can act normally when the other is in a state of abeyance; such as is the case with the foetus in utero, and, to a certain extent, with the infant, and during sleep; with those animals who are periodically thrown into the state of hibernation, and with those patients who are affected with diseases which incapacitate them from using muscular exertion—diseased spine, diseased uterus, and some cases called hysterical, in which no disease can be discovered. How frequently do we find the victim of these diseases live long and well, the involuntary powers performing their functions as in a state of health, until the local ailment, if it terminate unfavourably, produces such a state of excitement and irritation as to interfere with their action.

Not so, however, with the voluntary powers, the exercise of which consists in waste: increased beyond the nutritious supplies afforded them by the involuntary processes, disease immediately commences. The patient is not only rendered more liable to be subjected to epidemic influences, but tubercular diseases are indebted for their progress and development to the same source. In epidemic disease, nature soon interferes, and reduces by prostration the voluntary movements to their minimum; but in the more chronic maladies, and especially those under consideration, she interferes much less, and frequently the patient and his friends thwart the feeble endeavours she makes.

The method of keeping limbs affected with tubercular disease perfectly quiescent, and restraining the movements of the patients, is now generally practised, not only without injury to the nutrient functions, but to their profit. Why should not the same benefits be extended to the more fatal diseases of the same class? Why should the respiratory movements be quickened by exercise, and the blood sent with increased momentum through tuberculated pulmonary tissue? Whatever may be the cause of the rapid pulse in many cases of phthisis, it always prognosticates an acute and rapidly fatal case; and the administration of digitalis, which moderates the impetus of the circulation, was at one time an esteemed remedy; and an observant physician was so convinced of its power, that he stated that if some adjuvant could be suggested, pulmonary disease would be placed much more under control. I have frequently seen much benefit from its employment; but I believe that most, if not all, of its advantages can be obtained by rest, and those without the bad effects on the nutrient system which attend its prolonged use and that of other like remedies.

It is undeniable that long confinement to bed or couch will have the effect of rendering the blood less arterial than obtains in the healthy state; but such a deterioration, although unfavourable to intellectual and physical vigour, is still less favourable—as shown by the researches of Rokitsansky—to tubercular deposit, and is considered by him as incompatible with it.

A similar carbonized condition of the blood ob-

tains in those who consume large quantities of fermented drinks and alcohol, which, though deteriorating to the health generally, seem to render them less subject to tubercular diseases than the rest of the community.

The immense consumption of cod-liver oil, of late years, by scrofulous patients, and its beneficial effects, so frequently and generally attested, point to the same conclusion.

But to appeal to a contrary condition of the blood, the result of a patient's removal from a city residence to the country or the sea-coast, where oxygenation of the system progresses most favourably—how frequently, in those cases, has the physician to regret that he recommended his removal! and the friends become converts to the old and vulgar doctrine expressed in the remark that “the air has been too strong for him.” There are no doubt instances when, by such a removal, the system, by the sudden demand made on its resources, seems impelled, as if put on its defence, to increased activity in procuring supplies, and the alimentary apparatus is found sufficient. But those cases are rare, and the improvement is temporary, as they generally soon afterwards proceed more rapidly to a fatal termination.

And again, the hereditary scrofulous, in a majority of cases, exhibit, especially in youth, and before the disease has commenced its inroads on the constitution, the appearance and character of a highly-arterialized condition of the blood, evidenced by their blooming complexion, brilliant eye, vivacity, and precocious intelligence.

The ultimate analysis of tubercle may also be pressed into the argument, which has shown that that deposit contains a smaller amount of carbon than healthy tissue.

The preceding remarks, with whatever justice they may be characterised as speculative, have not been made without a warrant from experience, a portion of which I beg to submit in the following condensed report of the House of Refuge for Females, Glasgow, embracing a period of ten years, where nearly the only fatal cases of disease were tubercular, and where, during the latter years, the method of treatment indicated by the above was as far as possible carried out.

Substance of Medical Report of the House of Refuge for Females, Glasgow, from January, 1843, till January, 1853.

The deaths in any establishment are not a perfectly certain index of its sanitary condition, but the only data at my disposal having been the reports of the fatal cases, the majority of which have appended to them the post-mortem examination. But although not an absolutely certain criterion, the marked difference, in this instance, of the numbers at the commencement and at the end of the period, by affording a means of comparison, renders them a near approximation. The Report Book also contains the cases of fever which during that time occurred in the institution.

The following table shows the number of deaths

each year, and the diseases of which the patients died. It comprehends the total deaths, excepting three which occurred in the Infirmary—two during the period of the greatest mortality, and one in the last year of the series:—

	Tubercular Disease.	Bronchitis.	Disease of Brain.	Heart Disease.	Total.	Number of Inmates.	Mortality per Cent.
1843	2			1	3	119	2.05
1844	4	1			5	119	4.02
1845	6				6	119	5.00
1846	5		1		6	119	5.00
1847	3				3	119	2.05
1848	3				3	122	2.05
1849	0				0	132	0.00
1850	3				3	132	2.27
1851	1				1	132	0.75
1852	1				1	196	0.51
	28	1	1	1	31		

The ages of the above cases varied from thirteen to twenty-four, excepting the two last, which were respectively seven and twelve.

It appears that from 1845–46, the years of the greatest mortality, till 1852, the annual ratio of deaths gradually diminished from 5 to $\frac{1}{2}$ per cent.

Where are we to look for the cause of this remarkable diminution? Clearly to the changes that may have taken place in the class of girls admitted, and in the internal arrangements of the institution.

There was no change in the class or character of the admissions, whilst the difference of age at the various periods was not such as to influence the ratio of mortality. But from an analysis of the cases marked tubercular in the table, I find that nineteen of those were one year and upwards in the house before the attack of their last illness, and nine only under that time, one of which was admitted from the hospital in a state of active disease: indicating that the cause or causes of the sanitary improvement of the house must be sought for in its internal arrangements. These may be stated as embracing dietary, accommodation, and ventilation; medical treatment and moral treatment.

It appears from the dietary tables I have been furnished with by Mr. Bryce—one of the commissioners, to whose wise administration of the affairs of the institution the public is greatly indebted—that the establishment has had the benefit of four dietaries—the first in 1842, the second in 1848, the third in 1849, and the last in 1852. A reference to the table of diseases will show that the period of the greatest mortality was when the institution was dieted according to table 1842—viz. from 1842 to 1848; and that of the smallest, when dieted by the three last; and it is remarkable, that the year following the first change, in 1848, the mortality was at its minimum, and there were no deaths for eighteen months. It again rose in 1850. But I think the present sanitary condition of the house may be fairly estimated by that of the four last years, which, contrasted with the six preceding, is as 0.82 to 3.6 per cent.

In order to test the value of the several dietaries, I have reduced them to a form, in which the

daily amount, and the relative value of each article of food, are exhibited. The data to which I have had recourse are those of Dr. L. Playfair, as published by Dr. Christison in the *Edinburgh Monthly Journal of Medicine*, 1843, in his Report on the Prisons of Scotland. The following are the general results:—

	Nitrogenous Nutriment.	Carboniferous Nutriment.	Total Nutriment.
	Oz. Av.	Oz. Av.	Oz. Av.
Table 1842 . . .	3.24	14.29	17.53
" 1848 . . .	3.34	11.82	15.16
" 1849 . . .	3.49	12.03	15.52
" 1852 . . .	3.58	12.36	15.94

The first table contains the greatest amount of total nutriment, but is the poorest in nitrogenous and the richest in carboniferous elements. In the other three, the nitrogenous elements increase every succeeding table, and the last is the highest in that constituent; but as respects the present inquiry, they may be considered of equal value.

I do not think, however, that the difference in the proportion of the elements between the first and the last three is sufficient to account for the great difference in the mortality, for the total amount of nutriment in 1842 is greater than in table 1848, and the nitrogenous value of the latter is not greatly superior; but the quality of the food differs chiefly in the article of potatoes, which is present only in the last of the three, and in small proportion, whilst in the first it supplies 4 ounces of the dry total nutriment, and 17 ounces of the rough weight.

It is extremely probable that however excellent an article of diet the potato may be under certain conditions, and combined with other food, it is, except in small quantities, improper for such institutions as the House of Refuge, where butcher's meat is so sparingly used, that it deranges the digestive organs, and not only is itself improperly digested, but interferes with the digestion of more nutrient articles.

The analysis of the tubercular cases mentioned previously, corroborates this view, where it appears that out of 28 cases, 6 died of affections of the chest and abdomen, and 5 of tubercular disease of the abdomen alone, which last affection is seldom, except in young children, the primary one, and rarely reaches a fatal termination until the chest is involved, showing that the condition of the digestive organs of the inmates determined to the bowels in an unusual proportion of cases the tubercular deposit. The last of these cases occurred in the summer of 1848, when the changes in the dietary commenced.

The other beneficial alterations of the same period were the withdrawal of bones, and their replacement with meat, mutton-suet, and cheese, although the quantities were small.

In 1850, additional accommodation was procured, which enabled the Commissioners to make several improvements in the economy of the house, the chief of which were the providing separate wards for work and educational purposes, to be occupied during the day, and appropriating others

as dormitories, and introducing into the last iron bedsteads in exchange for hammocks. Previous to this they occupied the same wards day and night, which they were enabled to do by the removal of the hammocks to an adjoining apartment every morning.

Facilities for ablution, warm and cold bathing, and improvements in the apparatus for heating the wards, were also at the same time introduced. The beneficial effects of the last were apparent in the marked diminution of chilblains and ulcers of the lower extremities, the consequence of a depressed and languid circulation during the winter months.

In growing persons, so constitutionally weak, as the diseases to which they are subject prove them to be, a sufficiency of warmth must be a great desideratum, and an insufficiency more to be guarded against than an excess.

The comparative influence of the colder months as an exciting cause of disease is shown in the numbers attacked by their last illness in the respective months of the year.

	Cases.		Cases.
January . . .	9	July . . .	1
February . . .	5	August . . .	3
March . . .	3	September . . .	0
April . . .	2	October . . .	2
May . . .	4	November . . .	0
June . . .	1	December . . .	1

As the above dates are those only of their application for advice, there is no doubt that many of them suffered from the effects of cold weather for some time previously.

The modifications which I found myself obliged to make in the treatment of the tubercular cases were, I believe, of great importance, although they must rank secondary to the changes in the dietary. Indeed, one modification, the administration of cod-liver oil to the weakly, is, I think, fairly entitled to a place in the same category, as its merit consists in its being easily and with little digestion conveyed into the system and supplying the blood with carbonaceous aliment. It was first prescribed—at least, to any extent—in 1848, the year of the first improvement in the dietary, which renders it difficult to show what share in the improvement of the health of the house which followed, ought to be ascribed to it; but from observation of its effects in individual cases, in arresting the development of tubercular disease, I am convinced of its unquestionable value. The quantity consumed by the inmates during the last five years amounted to 515lb., having increased from 32lb. in 1848, to 210lb. in 1852.

Besides the administration of oil, an improved method of managing the tubercular cases was gradually adopted. The inmates were encouraged by their attendants to make early application for advice, and more attention was paid to the first symptoms of impending disease. Listlessness in manner, failure in appetite, falling off in general appearance, and slight swelling of the lymphatic glands, were deemed sufficient to demand medical treatment, which was continued until the indica-

tions had disappeared. Modification or suspension of their accustomed tasks were directed, and if an acceleration of pulse existed removal to the sick-room or confinement to bed. Cough attended with hæmoptysis, prolongation of expiratory murmur, or harshness in respiratory, under either clavi-
cle, were considered evidence, singly or collectively, of the development of tubercle. Depressing remedies were very cautiously and sparingly administered. The preparations of mercury were almost ignored, less objectionable measures being had recourse to, to rectify faulty secretions. Great care was taken to avoid the error of attributing to moral causes, such as indolence or ill-temper, the disinclination to exertion, which in young persons is almost always the result of physical derangement, and to combat the prejudice in favour of coercive exercise and employment in such cases.

The well-known effects of the depressing passions on the animal economy, and an alteration which was made in the rules of admission during the period under review, render it necessary to allude shortly to the moral treatment.

For some years after the opening of the institution many girls were admitted from the police courts, who had been found guilty of petty crimes, and who preferred the alternative offered of confinement in the House of Refuge to being sent to prison. Those admissions, being generally very bad characters, were seldom long contented with their choice, notwithstanding every kindness shown them, and frequent attempts were made to escape, which required constant watching to frustrate. A bad feeling was generated, which pervaded the whole establishment less or more. Oftener than once a petty rebellion occurred, which required the authority of the commissioners to subdue; and also a convulsive epidemic, not a little puzzling to the attendants, which was latterly suppressed by the wholesome terror of the cold douche and solitary confinement while the fit lasted. The system of coercive confinement was at length discontinued with much benefit to the feelings and comfort of the inmates, and also to the general health.

Another circumstance worth noting is the comparative freedom of the house from epidemic disease, attributable to its ample accommodation and proper attention to ventilation and cleanliness.

The number of cases amounted during the ten years to 18—viz. 14 of continued fever, and 4 of scarlatina, 5 of the former having been admitted with the disease in a latent form. For five years, from 1845 to 1851, no cases occurred in the institution, although the city and suburbs suffered from two widely diffused and fatal epidemics—the fever of 1847–48, and the cholera of 1848–49.

In striking contrast with this statement, may be cited the case of a building in the same part of the city as the House of Refuge, occupying about the same extent of ground, but with conditions for the generation of disease altogether the reverse, in which 518 individuals resided, of whom 16 were attacked with cholera, and only 1 recovered. I have no doubt that other cases occurred

in the same building unknown to the medical visitors.

Beaufort-buildings, Strand, July, 1856.

ON THE SUPPOSED INFLUENCE OF OFFENSIVE TRADES ON MORTALITY.

By JOHN SNOW, M. D.

THE science of public health, like other branches of knowledge, may be as much benefited by the removal of errors which stand in the way of its progress as by direct discovery; and it is with this conviction that I send for publication the result of an examination into a portion of the Registrar-General's very valuable Weekly Returns of Deaths in London. Whilst a number of eminent authors have for a long period attributed the generality of epidemic or zymotic diseases to special poisons passing in some way from one patient to another, an active section of the profession has attributed the greater number of these diseases to a variety of general causes, and in particular has asserted that they were occasioned, or greatly aggravated, by offensive gases proceeding from putrefying materials, even though these materials did not proceed in any way from sick persons.

An opportunity is now afforded of examining this question on, as I believe, a larger scale than previously. For the last eighteen months the Weekly Returns of the Registrar-General have contained the occupations of males aged twenty years and upwards whose deaths have been registered, and at the end of each quarter of a year the aggregate results have been given in a table. The causes of death are not contained in the table; but the diseases which offensive trades are presumed to promote are such as would increase the mortality, and in fact the mortality of persons in any occupation is the best criterion of its salubrity. The entire number of males aged twenty years and upwards in the metropolis at the last census was 632,545, and the number of deaths in this division of the population, in the year and a half just expired, was 22,889, being at the rate of 241 per annum in 10,000. The number of persons aged twenty years and upwards working and dealing in animal substances was 40,004 in 1851, and the number of deaths in the last eighteen months, 1210, being at the rate of 201 per annum in 10,000, or five-sixths as many as in the entire male population of twenty years and upwards. The greater number of persons working and dealing in animal substances are, however, occupied amongst silk, wool, and hair, which are in no way offensive; and I therefore thought it desirable to separate those trades which I believe to be really offensive, and I have included in the accompanying table all such occupations in which any death has occurred during the last six quarters. These occupations include 6943 persons, of whom 214 died, being at the rate of only 205 per annum in 10,000, which is greatly below the mortality of the whole male population of twenty years and upwards. There are some offensive

trades in which no death occurred during the last eighteen months. If these trades had been included in the table, the mortality would have been shown to be lower than it appears. Butchers, poulterers, and fishmongers have sometimes been considered to follow offensive trades; but although these persons may occasionally, by a neglect of their duty and interest, be exposed to offensive gases, their proper occupations cannot be considered offensive, and I have therefore not included them in the table.

Occupations of males, aged 20 and upwards	Living in London at the Census of 1861.	Deaths in 18 Months, ending June 28, 1864.	Deaths per annum in 10,000 living in 1861.
Tripa dealer, dresser	194	9	
Tallow chandler	1239	42	226
Comb maker	398	16	
Soap boiler	338	6	
Musio-string maker	87	1	
Bone gatherer	34	3	
Bone worker	52	2	
Currier	2649	79	195
Tanner	1814	85	177
Fellmonger	202	5	
Grease dealer	67	1	
Cats'-meat purveyor	60	3	
Skinner	170	5	
Parchment maker	75	5	
Glue and size maker	64	2	
Total of offensive trades	6943	214	205
Total working and dealing in animal substances	40,004	1210	301
Total of males aged 20 and upwards	632,545	22,889	341

The Registrar-General has very properly remarked that "As the persons engaged in various callings are distributed in different proportions through several periods of life, and as the rate of mortality depends on age, an analysis of the ages of the living and dying must be made before deductions regarding the comparative salubrity of professions can be drawn with safety." In comparing the mortality of a single occupation, or any group of occupations, with that of the whole population, however, one acts as if all the persons in these occupations had entered them before the age of 20; and therefore any fallacy from the above cause tells against the occupations examined, and not in their favour. For instance, according to the figures in the above table, the expectancy of life for the whole male population of London, at the age of 20 years, is $41\frac{1}{4}$ years, or in other words, the average duration of life in those persons would be over 61 years; whilst in the persons engaged in the offensive trades enumerated in the above table, the expectancy of life at 20 would be over $48\frac{1}{4}$ years, and the average duration of life over $68\frac{1}{4}$ years; but if some persons enter these trades later in life than 20 years, then the expectancy of life at 20 is greater, and the average duration of life is greater in those who have arrived at 20. The

mortality amongst the licensed victuallers and beer-shop-keepers has been at the rate of 373 per annum in 10,000 during the last eighteen months; but part of this high mortality is undoubtedly due to the circumstance that a great number of persons do not enter these trades till they are advanced much beyond twenty years of age. All these facts tend to show that if the above table does not express accurately the mortality of persons engaged in offensive trades, it errs by making the mortality appear greater, and not less, than it really is. I am quite aware that, as time rolls on, the returns of the Registrar-General will afford a greater body of facts regarding offensive occupations; but during the six quarters that have already elapsed since these returns were commenced, the results have been pretty uniform, and are, in my opinion, sufficiently important to be commented on. The health of persons employed in any occupation is necessarily the best measure of the effects of any such occupation on the public health. As the gases given off from putrefying substances become diffused in the air, the quantity in a given space is inversely as the square of the distance from their source. Thus, a man working with his face one yard from offensive substances, would breathe ten thousand times as much of the gases given off, as a person living a hundred yards from the spot. Currents of air would make a difference; but this would be the average proportion of the gases inhaled respectively by the two individuals. There are, moreover, so many causes which influence the health of a neighbourhood, that it would be almost impossible to judge from that alone of the effect of trades or occupations conducted in it. I of course attribute no benefit to offensive smells; and the reason why the persons employed in the callings I am treating of enjoy a greater longevity than the average, is probably because they are less exposed to privation, and less addicted to intemperance than men following many other occupations, and because, as a general rule, they do not lead a sedentary in-door life. It is sometimes argued, that since the gases given off during putrefaction are capable of causing death when in a somewhat concentrated form, they must necessarily be injurious in the most minute quantity; but this by no means follows; for carbonic acid gas, which is a well-known poison when present in large quantity, is a natural constituent of the atmosphere; vapour of ammonia is sniffed without hesitation, and even sulphuretted hydrogen is absorbed, in considerable quantities, by the visitors at Harrogate and some other watering-places.

Cholera has not been present during the eighteen months for which the mortality in different occupations has been published; but there are certain facts which bear on the alleged influence of offensive trades on this disease. A great number of skin yards, bone-boiling establishments, and other offensive factories are situated in that part of Lambeth which extends by the river side from Westminster-bridge to Vauxhall-bridge, and constitutes the sub-district called Lambeth Church, 1st part. This part of Lambeth contains also many of the

other conditions which are supposed to, or which really promote the prevalence of cholera. It is crowded with a poor population, wherever the ground is not occupied with the factories above mentioned, and it lies by the river side, at an elevation of only two feet above Trinity high-water mark, yet the deaths from cholera in 1854 were only 29 to each 10,000 inhabitants, whilst in London at large they were 45 in 10,000; in the sub-district of Kennington, 1st part, less densely inhabited, they were 126, and in Clapham 108 in 10,000, the latter being a genteel, thinly inhabited sub-district, at the elevation of 21 feet. Again, the sub-district of Saffron hill, with the slaughter-houses, knackers' yards, and catgut factories of Sharp's-alley on its eastern boundary, and the Fleet-ditch, at that time uncovered, flowing through it, suffered in 1854 a mortality from cholera of only 5 in 10,000; being one-ninth of that of the metropolis generally, and one-twelfth of that of the Belgrave sub-district, where the mortality was 60 in 10,000. These circumstances might be thought to prove a little too much, were it not that the prevalence of cholera is influenced by a variety of circumstances, and in London very much by the nature of the water supply; for, in the short but severe epidemic of 1854, the chief medium of its propagation in the metropolis was water, containing whatever passed down the sewers from previous patients. The sub-district of Bermondsey, called the Leather-market, which contains a number of factories for skin-dressing, suffered, in 1854, exactly the same high mortality as the other five sub-districts in the South division of London, which, like it, were supplied exclusively with the impure water of the Southwark and Vauxhall Company. The conclusion to be drawn from all these facts is, that the vicinity of offensive factories leaves the cholera to pursue the same course that it would do in their absence.

Sackville-street, July, 1854.

REPORT OF A CASE OF RECURRING FIBROID TUMOUR OF THE COCCYX APPROXIMATING TO CHARACTERS OF MALIGNANCY; RAPID RECOVERY AFTER THE OPERATION.

By R. RICHARDSON, L.F.P. & S.G., Rhayader, Radnorshire.

As the following case is highly interesting, in a practical point of view, showing the advantage of an operation as the *last chance*, when the tumour has all the characters of being malignant, I forward it for publication:—

Mrs. E—, a farmer's wife, aged forty-four, a tall, sickly-looking woman, having that cachectic hue of countenance peculiar to malignant diseases, called leaden hue, greatly emaciated and prostrated, as her appearance was that of a living skeleton. She had an enormously large tumour, situated over the coccyx, the size of an adult head, with eight large holes, with everted edges discharging the most offensive matter. To use her own words,

she was "a perfect nuisance to herself and family." When fourteen years of age, she had it removed. It was then the size of a goose's egg. Two months afterwards, she found it growing again, and it continued to do so for thirty years without giving the least pain, only the inconvenience, till about twelve months since, when it inflamed and broke into eight holes, and continued to discharge very copiously up to the time of the operation. Her general health has been very good up to the time that it inflamed; has had two children, a son and a daughter; menstruation regular, and always has been so. On examining the tumour, I found it so attached to the coccyx that it was quite immovable in the direction of that bone. When I found that the lumbar glands, and also the lymphatics, were not affected, I proposed the removal of the tumour; and to this she consented at once. As she was living a long distance in the country, I advised her to come to stay in town, that she might be near for me to attend. She arrived in town on the 5th of April, 1855. Complained of having had a bad cold; pain in the left side; a short cough; dullness on percussion; crepitating r le; breathing 30; pulse 94; tongue white; the skin moist. To take the following mixture: Acetate of liquor of ammonia, four ounces; antimony wine, two drachms; camphor mixture, three ounces and a half: half a wine-glassful every four hours. Counter-irritation applied to the chest.

April 6th.—Is much better; the cough left in a great measure; perspires freely.

7th.—Progressing favourably; does not feel so feverish; bowels costive. To have an aperient pill to-night.

8th.—Much better; bowels open; pulse 76; breathing 22; cough left; sleeps well at night; and the appetite improved.

12th.—Feels herself gaining strength. To have a pint of porter a day, and an ounce of quinine mixture three times a day.

16th.—Is much better, and is very anxious to have the operation performed. To continue the same medicine.

20th.—She was placed under the influence of chloroform. The tumour was removed by two elliptical incisions longitudinally. On dissecting off the tumour, I found the coccyx hypertrophied and so soft that I was able to remove a portion with the knife. The h morrhage, during the operation, was very trifling. One vessel required the ligature to be applied. The wound was dressed with lint, so as to heal by granulation. The patient was put to bed, complaining of being very cold. To have a glass of brandy and water, and hot bottles applied to her feet; also an anodyne draught at night.

21st.—Feels thirsty; the pulse 110; the urine drawn off with the catheter. To take an ounce of the saline mixture every four hours.

22nd.—Slept comfortably last night. To continue the same medicine, and water-dressing to be applied to the wound.

23rd.—Feels better to-day. Water-dressing to the wound as before.

24th.—Bowels costive. To have an aperient pill to-night. Wound dressed the same.

25th.—Is much better; appetite improved. Continue the water-dressing.

26th.—Progressing favourably. To have fish for dinner. Wound dressed as before.

28th.—Much better. To take the quinine and iron mixture, and a pint of porter a day. The water-dressing to be continued.

29th.—Feels herself gaining strength daily.

30th.—Still improving. Repeat the medicine. Some of the granulations appear flabby. A lotion of nitrate of silver to be applied, and the water-dressing.

May 2nd.—Feels much stronger to-day, and sat up in bed for an hour. Wound dressed as before.

3rd.—Steadily gaining strength.

4th.—Is convalescent. Sits up at the fire. Still to continue the medicine; and apply the water-dressing to the wound.

Without going any further into details, it may be stated that she continued to improve daily, and in five weeks was able to walk about the town. Instead of being pale and emaciated, she is healthy and strong.

I have been waiting the result of this operation before bringing it before the notice of the readers of *THE LANCET*. When it was removed the first time, it recurred in two months; perhaps because some portion of the tumour was left, as it grew exactly on the old cicatrix. It is now fifteen months since she had it removed, and there is not the least sign of its recurrence; and it is to be hoped that, after careful removal of the diseased portion of the bone whence it sprang, it will be completely eradicated.

In referring to Mr. Paget's valuable work on Tumours, I find him making the following statement:—"I proposed the name (recurring fibroid tumour) for a group of which the chief characteristics are, that their general aspect very closely resembles that of common fibrous tumour; their microscopic structure consists of corpuscles, caudate and elongated, as if developing into fibres; and the most striking feature in their history is their proneness to return after removal. The question arises, may not these tumours, originally quite benign, degenerate and become malignant?" In this case we find an instance; the tumour growing for the period of thirty years, without causing the least pain. Then, after inflammation took place in it, it changed its characters: the integuments became indurated, the openings having everted edges, bleeding sometimes profusely; and the cachectic state of the constitution. May not all these be attributed to the tumour being in a state of decomposition? Mr. Paget pointed out, that in some cases these fibroid tumours have assumed malignant characters:—

"Although there be cases in which this evil career has not been run, yet I think we may regard these tumours as approximating to characters of malignancy not only in their proneness to recur after removal, but in their aptness to assume more malignant features after they recur. What-

ever be the truth concerning the supposed transformation of an innocent into a malignant morbid growth, I think it can hardly be doubted that, in the cases of some recurring growths, such as these, and certain proliferous cysts, the successively later growths acquire more and more of the character of thoroughly malignant."

Remarks on the Tumour.—Its size was that of an adult head, and it measured in length, from above downwards, nine inches; transversely, six inches and three-quarters; anteriorly and posteriorly, four inches and a half. It weighed 6lb. 3ozs. Its microscopic structure consisted of corpuscles, caudate and elongated, with granular matter. The interior of the tumour was in a state of decomposition.

July, 1866.

ON SYNCOPE SENILIS.

By ROBERT BEALES, M.D., Congleton.

THE various manifestations of gastric irritation are familiar to most practitioners. These manifestations, for the most part, pass under the terms "indigestion," "gastric irritation," "gastrodynia," &c. I was much interested by a paper which appeared lately in *THE LANCET*, by J. Higginbottom, Esq., F.R.S., of Nottingham, on the subject. Like most of the papers from the pen of that gentleman, it was marked by originality and shrewd observation.

Two cases having occurred recently in my practice, similar to those recorded by Mr. Higginbottom, I am induced to forward them to *THE LANCET*, as confirmatory of his view of the subject, and the efficient treatment recommended.

Hitherto this affliction has been unnamed; Mr. Higginbottom proposes to call it "Syncope Senilis" when it attacks old people. The term seems a suitable one, although I am inclined to think that the syncope does not begin at the heart, but that the nervous centres are primarily affected through the pneumogastric, evidenced by the slight convulsions and tendency to coma which I have generally observed. Medical nomenclature is proverbially difficult, and unless Dr. Marshall Hall, whose attention has been so long directed to this subject, and whose facility of expressing complex symptoms by short and learned terms is as remarkable as the other manifestations of genius, can suggest a better, the profession will do well to adopt it.

The most recent cases I have had are the two following:—Mr. E—, aged 78, suffering from the usual impairment of functions attending old age, having lost all his teeth, but possessing a vigorous appetite, was seized about two months ago, between nine and ten at night, with what his friends called a fit. I happened to have called on this patient about four o'clock the same day, and found him dining off a portion of a loin of mutton, nearly all fat, which had been cooked several days, with pickles and an unusual quantity of potatoes, and a second course of pastry. I cautioned him

at the time, fearing that there might be "syncope senilis." I was not therefore surprised to receive the message in the evening to come immediately, for Mr. E—was apparently dying. I found him partly conscious, with slight twitchings, laboured breathing, feeble pulse, and cold clammy surface. Knowing the cause I at once administered an emetic of *impecacuanha*. In about ten minutes he ejected the contents of the stomach, very much in the same condition in which they had been introduced. The next day the patient was in his usual health.

Another case was that of a poor woman, who gets her living by washing. After standing at the tub all day, being somewhat hungry, she partook heartily of new bread, returning, as soon as the meal was finished, to her work. Shortly afterwards she dropped on the floor. Brandy was freely administered, and I was sent for. I found her very like a person recovering from syncope; inquiry elicited the fact of the new bread, and the treatment of the case was then clear. I gave an emetic; she speedily vomited, and relief was instantaneous; reaction followed, and no further treatment was required.

The concluding observations in Mr. Higginbottom's paper are worthy the attention of those who are frequently consulted about the most suitable diet for the aged, and the best means of protracting their existence. Assurance Companies would be much benefited by the attention of the profession to this subject. The value of many "lives" is diminished ten or fifteen years through error in diet leading to attacks of syncope senilis.

July, 1864.

ON A CASE OF OBSTRUCTED BOWEL.

By HORACE C. HASTINGS, Esq., M.R.C.S., &c.

The subject of this case was a lady of spare habit, sallow complexion, aged sixty-three. She had suffered for several years from constipation, her stools being painful, and sometimes occurring at intervals of five or six days; formerly, she had been in the constant habit of employing enemata, but had discontinued their use of late.

On the 29th of November she experienced severe spasmodic pains, speedily followed by flatulent distension of the abdomen; she took a dose of castor oil, which had the effect of slightly relieving the bowels.

30th.—The pain and distension remaining the same all day; she took two pills of *colocynth* and *henbane* in the evening.

Dec. 1st.—The bowels not having acted, she had recourse to one pill early in the morning, and a little later, at ten A.M., took a large dose of castor oil: slight relief followed.

2nd.—She took another pill in the evening, passed a very restless night, and finding the symptoms of pain and distension were not relieved by these measures, I was hastily summoned early on the morning of Dec. 3rd. I found the abdomen greatly distended, and resonant from the accumu-

lation of flatus, with slight tenderness on pressure, referred principally to the umbilical and left iliac regions; constant rumbling noises were heard in the bowels; there was frequent eructation, but no sickness; an anxious countenance; mouth clammy; tongue whitish; thirst; febrile disturbance limited; pulse 78, and soft. Eight grains of calomel and two of opium were prescribed, and followed up in four hours by a large dose of castor oil (six drachms); hot fomentations to the abdomen; at the same time an enema of soap-and-water was administered, which brought away a few scybala from the rectum: I found it impossible to throw up a large injection. At noon I saw her again; no action in the bowels had taken place since my last visit. I considered her countenance denoted a greater degree of restlessness and anxiety; the abdomen, on pressure being made, was more painful; her pulse was also increased in frequency, about 90. I administered another enema with a powerful syringe, but with no better effect: I then advised a warm bath, which greatly soothed the patient, and relieved the paroxysms of pain.

The symptoms now assumed a serious aspect, and Dr. Ranking, of Norwich, was associated with me in the treatment of the case. The rectum was carefully explored, and the *œsophagus* tube passed into the bowel, another enema being given at the same time; the fluid injected returned immediately, with no other result than that of simply washing out the rectum, which the previous injections had completely emptied of its contents. The introduction of the tube any distance was found impracticable, for it immediately coiled upon itself in the pouched bowel, or was arrested at the seat of obstruction. Dr. Ranking thought it advisable to make another and last effort to overcome the obstruction by purgatives: ten grains of calomel, and a saline effervescent draught, with two drachms of sulphate of magnesia, to be taken every four hours, were prescribed; sixteen leeches were applied to the seat of pain, and a pill, consisting of two grains of calomel, and one of opium, was given every two hours.

4th.—No action in the bowels, but the pain was relieved; distension of abdomen increased from flatus to such an extent as to cause considerable embarrassment in respiration; frequent eructation, but no sickness; tongue white; thirst urgent; pulse 90, soft; secretion of urine abundant. The bowel was again examined, and more water injected with considerable force, but with the same result: the pills were continued every three hours, and eight more leeches applied to the abdomen. It now became evident that the obstruction was of a *mechanical* nature, and purgatives, the warm bath, and enemata having failed, Dr. Ranking suggested, in the event of no relief being obtained in the course of the next two or three days, that a surgical operation (*Amussat's*) would afford the only chance of prolonging life. This "*anceps remedium*" was, however, subsequently declined by the patient.

5th.—Pulse 90; other symptoms much the same; the pills were continued.

6th.—Mouth slightly affected by the calomel, which was consequently withdrawn, and opium alone given in the formula recommended by Dr. Barlow, in his recently published manual.

7th.—Much the same.

8th.—No perceptible difference.

9th.—Pulse increasing in frequency, 100; more compressible; eructation very troublesome, and respiration more embarrassed; no vomiting.

10.—Remains much in the same state.

11th.—No change.

12th.—Very severe pain had been experienced during the night; pulse 130; small and very compressible, in a collapsed state, and sinking. Died on Thursday morning, Dec. 13th, fifteen days from the commencement of the attack.

Examination of the body, twelve hours after death.—I examined the abdomen only, which I found enormously distended, its circumference being nearly doubled; and on making the first incision and reaching the sac of the peritonæum, an immense quantity of fetid gas escaped, which considerably reduced the distension. The peritoneal sac contained no trace of serum. The small intestines remained much distended with flatus, notwithstanding the previous escape of gaseous matter; the distension commenced from the duodenum, and extended to within six inches of the termination of the ileum, where it ceased, and the bowel became suddenly contracted: its contraction here was doubtless occasioned by recent inflammatory action, in evidence of which, the vessels of the part were red and congested, and an adhesion had, moreover, been formed between this portion of the ileum and the neighbouring viscus. The large intestines, from the cæcum to the sigmoid flexure of the colon, were considerably distended with fluid feces, and not with flatus, as the small intestines; and on the free side of the cæcum, at about its junction with the ascending colon, its coats had given way from ulceration, and through the small opening thus formed a portion of the contents of the bowel had escaped, this perforation of the intestine accounting for the sudden change in symptoms, collapse, and death of the patient. The distension of the colon abruptly terminated, and the character of its contents altered, at its sigmoid flexure, which was very contracted, and contained several scybalæ, varying in size, from a horse-bean to a small walnut, giving it a knotted and uneven appearance: its convolutions, indeed, struck me as being very small in calibre (scarcely admitting the little finger), short and crooked, making it obvious that here was the seat of obstruction, a displacement of the sigmoid flexure of the colon, by rolling over, having evidently taken place, and a consequent twisting of the bowel. The coats of this portion of the intestine were whiter and denser than natural, as if from chronic thickening, and adherent by condensed cellular tissue, partly to the sigmoid flexure, and partly to the commencement of the rectum, below the brim of the pelvis, I discovered a hard, heavy, foreign body, which proved on removal to be a *rounded tumour of bony hardness*, about the size of a pi-

geon's egg, which, from its situation, the dense nature of its attachments, and its unyielding structure, had doubtless exerted some indirect influence in impeding the function of the bowel. I removed the tumour, the entire rectum, the sigmoid and a portion of the descending colon; and to facilitate their removal, I introduced the œsophagus tube, which, even after death, and with one hand having access to the pelvis, proved an operation of some difficulty, in consequence of the contraction of the bowel below the seat of obstruction. The liver was healthy, but paler than natural; the gall-bladder greatly distended with bile; the kidneys healthy; the uterus was atrophied and degenerated.

Remarks.—There is no doubt that the scirrhus-like adhesions of the osseous formation occupying the brim of the pelvis, and situated between the uterus and the rectum, having attachments to both, had long acted as a *mechanical* cause of obstruction in this case, gradually producing that degree of contraction in the bowel which ended in foiling all efforts to overcome or remove; and that the strangulation at the sigmoid flexure was a secondary effect, and most probably resulted from constipation and neglecting the calls of Nature. The injections had never reached the sigmoid flexure, which contained several scybalæ, and beyond the point the feces had become so liquified by the action of the purgatives given, that strangulation of the colon, by rolling over, affords a satisfactory explanation of their passage onwards being arrested. The absence of sickness was remarkable; but the frequent eructation, and the embarrassment in respiration, caused by the distended abdomen encroaching more and more upon the cavity of the chest, occasioned the greatest distress. Inflammatory action was absent for the first few days, and very limited throughout, until perforation of the intestine took place. The urine was secreted in abundance. Purgatives having failed, reliance was chiefly placed in opium and injections. Amusat's operation would have had a fair chance of success; but it was not pressed with much fervour in consequence of a suspicion of malignant disease. The tumour consists principally of phosphate of lime, and is probably a degenerated gland.

East Dereham, Norfolk, 1854.

ON TWO CASES OF POISONING BY THE ACONITUM NAPELLUS AND BLACK HELLEBORE.

By J. MASSEY, M.D., Nottingham.

HAVING noticed in a recent number of THE LANCET several deaths from poisonous vegetables, I was reminded of two cases which came under my care some years ago. I think them sufficiently interesting for publication, and beg to direct your attention to them.

ACONITUM NAPELLUS.—The first occurred to a man about forty-eight years of age, a dealer in herbs. For some weeks before his death he had been desponding, on account of his work going wrong, and supposed infidelity of his wife.

On Tuesday night, March 11, 1851, his supper,

as usual, consisting of bread and milk, was taken by him at the shop. He was then at work as a "twist hand;" he did not eat it, but brought it home about ten o'clock, and told his wife that his frame was all wrong, and that it would soon be "all up with him;" he appeared to be greatly distressed in his mind.

Soon after leaving work he went into his garden, in which grew medical herbs, many of them of a poisonous nature, amongst which was the monkshood. He then went to bed, taking some of the root of monkshood with him, and eat a small portion of it with the cold bread and milk. This would be about eleven o'clock; at a quarter past he began to vomit, and was tremulous and giddy; he continued to vomit violently, soon became insensible, and died at a quarter after one, before any medical assistance could be obtained.

It was not known until after his death what was the cause of it; but in the garden a spud was afterwards found with the stem of some monkshood cut off lying near it, as well as the end of the root, the bulk or bulbous part having been removed. Amongst the bedding also was afterwards found portions of the root, which had been chewed. I was present at the post-mortem examination, which was made two days and a half afterwards, when the following appearances presented themselves:—

Stomach contained but little, and of viscid reddish colour; its lining or mucous membrane was of a deep chocolate colour throughout, most remarkable about the cardiac orifice and along the greater curvature; many bloody points were seen in patches here and there; two small pieces of raw undigested vegetable matter were found in it—one about the size of a large nut, the other smaller—which were easily broken up between the fingers, reddish on their surfaces, in being coloured with the viscid contents of the stomach, and of a whitish colour within, having the appearance of the root of the *aconitum napellus*. On being submitted to a powerful microscope, it corresponded exactly with the same substance, similarly tested, which had been found amongst the bedding. The brain and other organs of the body were generally healthy.

The death, in this instance, took place as nearly as could be ascertained about two hours and a quarter after taking the poison.

There was no diarrhoea; on the contrary, a coætive motion was found on the bedding, which must have involuntarily escaped just preceding death, during the state of insensibility.

BLACK HELLEBORE.—The other case did not prove fatal; a strong infusion of black hellebore had been accidentally taken by mistake for gentian root.

A quantity, about one ounce and a half, of the root of the black hellebore was put in a covered jar in an oven with twelve ounces of water; after it remained the whole night by a slow fire, a woman, on the following morning, took about a teacupful of it. It produced pain and pricking in the tongue, fauces, and throat; to use her own expression, "as if a hundred pins were pricking her."

There was a painful sense of constriction and strangury of the throat, with difficulty of swallowing; pain at the epigastrium, and very violent sickness. The tongue began to swell, as well as the other organs of deglutition; much viscid mucus was voided from the mouth. The eyes were sunk; there was excessive prostration of strength, discoloration about the eyelids, with great collapse of the vital powers—much as is seen in the collapse of Asiatic cholera; the extremities were cold, and the general surface of the body was bedewed with a cold, clammy sweat. Pulse varied from thirty to fifty beats in the minute, very small, and at times scarcely perceptible. An emetic of sulphate of zinc was given with large quantities of lukewarm water; afterwards, three grains of camphor dissolved in spirit of wine, mixed with yolk of eggs, as well as strong coffee. Hot applications to the extremities, with plenty of warm clothing to the surface. Coffee was afterwards repeatedly given; and in the course of three or four hours she rallied considerably. Pulse rose to 68 and 70. She complained of headache; the bowels were relieved with castor oil; and beyond saline effervescing draughts nothing further was done. She soon recovered.

July, 1854.

RULES FOR RESTORING THE DROWNED.

DRAWN UP BY MARSHALL HALL, M.D., F.R.S., &c.

THE following Rules are the *result* of half a year's investigation of Apnoea and Asphyxia—a subject which I propose to prosecute still further, knowing that truth only comes of long-continued labour and research. I wish especially to put to the test of careful experiment the correctness of the dogma, that if the heart has once ceased to beat, its action can never be restored—a dogma calculated to paralyze our efforts in many cases in which hope may really not be *totally* extinct:

1. Treat the patient instantly, on the spot, in the open air, except in severe weather, freely exposing the face, neck, and chest to the breeze.
2. Send with all speed for medical aid, and for articles of clothing, blankets, &c.
3. Place the patient gently on the face, with one arm under the forehead, so that any fluid may flow from the throat and mouth; and, without loss of time,—

I.—To Excite Respiration,—

4. Turn the patient on his side, and
 - (i.) Apply snuff or other irritants to the nostrils.
 - (ii.) Dash cold water on the face previously rubbed briskly until it is warm.

If there be no success, again lose no time; but,—

II.—To Imitate Respiration,—

5. Replace the patient on his face;—(when the tongue then will fall forward, and leave the entrance into the windpipe free;) then,—

6. Turn the body gently, but completely, *on the side and a little beyond* (when inspiration will occur), and then on the face, making gentle pressure along the back (when expiration will take place), alternately; these measures must be repeated deliberately, efficiently, and perseveringly, fifteen times in the minute, *only*; meanwhile,—

III.—*To induce Circulation and Warmth*,—

continue these measures,—

7. Rub the limbs *upwards*, with firm pressure and with energy, using handkerchiefs, &c., for towels.

8. Replace the patient's wet clothing by such other covering as can be instantly procured, each bystander supplying a coat, waistcoat, &c.

These rules are founded on physiology; and whilst they comprise all that can be immediately done for the patient, exclude all apparatus, galvanism, the warm bath, &c., as useless, not to say injurious, especially the last of these; and all loss of time in removal, &c., as fatal.

CASES OCCURRING IN THE SURGICAL PRACTICE

OF

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LECTURER ON SURGERY, EDINBURGH.

REPORTED BY

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HOUSE SURGEON TO THE ROYAL INFIRMARY, EDINBURGH

At the request of Mr. Spence, I have arranged the five following cases for publication, presenting as they do not only excellent and characteristic specimens of different varieties of tumour, but also in the individual cases affording many special points of interest. No. 1, indeed, is remarkable for little beyond the size of the tumour, and the rapidity with which the healing process, after the operation for its removal, was accomplished; but in No. 2 we have, I believe, a perfectly exceptional example of the manner in which this operation may prove fatal in its results—viz. from effusion of blood between the transversalis fascia and peritoneum, with subsequent ulceration and perforation of the latter membrane, followed by acute peritonitis and death. No. 3, again, is an excellent specimen of the universal implication of the internal organs of the body in a case of malignant tumour of an extremity. Their implication, however, being so little indicated by subjective or objective symptoms, that, had it not been for the small secondary tumour found attached to the crest of ilium, amputation at the hip-joint would have been performed, with, it is almost unnecessary to remark, in all probability, the most unsatisfactory results. In No. 4 we have an ordinary encysted tumour, occurring in the skin of the forearm, so exactly simulating a malignant growth as to render a positive diagnosis on the point almost impossible. Case 5, as regards the early part of its history, might have been placed first on the list, but as both tumours occurred in the

same patient, although at an interval of nearly twelve months, I have thought it more advisable to consider the whole case in *extenso*, its chief points of interest being the rapid appearance of a malignant tumour in a visceral cavity, subsequent to the removal of an extremity for a similar growth; the limitation of the secondary growth to one tissue in one part of the body, every other organ having been found perfectly healthy, except in so far as they had suffered from the mechanical pressure of the tumour; and the variety of ordinary chest diseases which it simulated. In connexion with the last point it is worthy of remark how thoroughly the physical signs, which it is now with some the fashion to deride, sufficed, independently of any previous history, to indicate the true nature of the affection.

CASE 1.—*Fibro-Cystic Tumour of the Testicle; Excision; Recovery*.—W. B.—, aged fifty-four, farm-servant, from Dirleton, admitted to the Royal Infirmary, August 4th, 1854, on account of a large tumour in the left side of the scrotum. This he attributes to a bruise received while riding nearly seven years ago, having first noticed a slight enlargement of the body of the testis shortly after the occurrence of the injury. The increase of bulk in the tumour has been very gradual, and quite unattended with pain. The left testicle cannot now be felt distinct from the tumour; the right appears normal in size and position. The tumour, generally, feels dense, but at some points an obscure feeling of fluctuation exists. A small trocar was accordingly thrust into the substance of the tumour, but, as no fluid escaped, its removal by operation was resolved upon.

Aug. 16th.—The tumour was removed to-day by two elliptical incisions. Eight or nine vessels required ligature, and the margins of the wound were brought into close apposition along its whole extent with the exception of a small portion at the most dependent part.—Evening: Does not appear in any way affected by the operation. Pulse unaltered. Merely complains of slight pain at the part where the cord was divided. Lint dipped in cold water is kept constantly applied to the wound, and he is ordered antimony in small doses every fourth hour, with the liquid acetate of ammonia.

On the 20th of August the points of suture were removed, the wound having healed by the first intention throughout its whole extent, except the small portion left purposely open at the lower part. Pulse now 76; appetite good.

Sept. 6th.—Dismissed, cured.

The tumour, which weighed four pounds, and measured five and a half inches longitudinally by four inches transversely, was of an oval form, and extremely dense and hard. On making a section, it proved an excellent specimen of fibro-cystic growth, containing in the centre two large cysts, with numerous smaller cavities nearer the circumference. An injection into the spermatic artery, of finely-powdered vermilion, passed into the surrounding capsule of the tumour and slightly into the septa, but not at all into the body of the

tumour itself. The rapidity of the recovery is worthy of note, primary union having been entirely completed in four days.

CASE 2.—*Cystic Cephaloma, arising from the Membranes of the Spermatie Cord; Excision; Death from Peritonitis, six days after the operation.*—J. J—, aged fifty-four, bricklayer, from Yorkshire, admitted to the Royal Infirmary on the 14th of November, 1855. States that two years and a half ago he began to suffer from severe lancinating pain in the upper part of the right testicle, for which he was unable to assign any probable cause, having never at any time been affected by venereal disease nor sustained any injury on the part. Has never experienced any difficulty in micturition, and his habits have been strictly temperate. Shortly after this, the painful part began to enlarge, and became very hard; the increase of bulk gradually extending both in an upward and downward direction. By a country surgeon it was at first treated as an ordinary case of hydrocele, by compression, and afterwards by leeching and stimulating applications. Under this treatment the tumour grew still more rapidly. He then applied to Mr. Young, surgeon, at Yarm, who, having at once recognised the nature of the affection, merely introduced an exploring needle as a precautionary measure, and recommended the patient to the care of Mr. Spence.

On admission to the hospital, a large tumour, measuring upwards of ten inches longitudinally, and five inches in its transverse diameter, was found to occupy the right side of the scrotum. The man says, that for a long time the testicle could be felt quite distinct from the tumour, but that within the last three weeks it has apparently become incorporated with it. There is still, however, the peculiar feeling caused by pressing on the healthy testicle experienced when pressure is made on the lower part of the tumour; and there is evidently a considerable quantity of fluid in the most dependent part of the tunica vaginalis. The whole tumour has a somewhat elastic semi-fluctuating feeling, and is much denser at some parts than at others. It extends upwards along the spermatic cord, lying anterior to it. At the internal inguinal opening, the cord is quite free; and at this point a slight impulse on coughing is appreciable, which is not perceived in the tumour itself. He does not suffer from pain, unless the tumour be roughly handled. No enlargement of the inguinal glands; left testicle of normal size; soft and flabby. General health good; complexion sallow; and he is rather emaciated, with marked depression in the temporal fossæ. The malignant character of the disease being very evident, its immediate extirpation was recommended; and accordingly, on the 21st of November, the patient having been placed under the influence of chloroform, the tumour was removed. As the upper part of it evidently projected within the inguinal canal, Mr. Spence made a preliminary incision, slitting up the intercolumnar portion of the aponeurosis of the external oblique, so as to expose the cord higher up. The fibres of the

cremaster were carefully divided; the cord was insulated by the point of the finger, and firmly held by Dr. Gillespie, who assisted. The incision was then carried down to the lower part of the tumour, and a second incision made, so as to include a large elliptical portion of the scrotal integuments. The cord was now divided, and the mass easily removed by a few touches of the knife. The spermatic artery was first tied, then a small vessel in the coverings of the cord, and lastly the scrotal branches: altogether nine ligatures were required. The enlargement in the inguinal canal was found to depend upon a large cyst, extending from the tumour in front of the cord. The edges of the wound were then brought into accurate apposition by points of suture, except for about an inch and a half, at the most dependent part. He was removed to bed, and cold applied continuously.—Four o'clock P.M.: Considerable bleeding from the upper portion of the incision, requiring the removal of the sutures, in order to secure the bleeding points; two small vessels were tied with some difficulty, being deeply seated in the inguinal canal. Some slight venous oozing continued, but was easily arrested by cold and moderate pressure. He has been rather sick from the chloroform, and complains of griping pains in the abdomen. Pulse 84, full and soft. Ordered, solution of muriate of morphia, one drachm and a half; compound tincture of cardamoms, two drachms and a half; camphor mixture, three ounces and a half; half an ounce to be taken immediately, and to be repeated every night if required.—Evening: pain and sickness gone; oozing from wounds has ceased; slept soundly for a few hours, and feels comfortable. Pulse 84.

Nov. 22nd.—Pains in the abdomen have returned with considerable nausea; his expression is anxious, and he complains of severe pain, increased on pressure in the right iliac region. No redness or appearance of tension about the edges of the wound. Suffers from thirst. Ordered to have a grain of the solid extract of opium in the form of pill immediately, and to have a sinapism applied over the epigastrium; the pill to be repeated if the vomiting persist. Pulse 92, soft. In the evening the nausea and abdominal pain became more urgent. Pulse 94, soft. Hot fomentations were applied over the abdomen, and an opiate enema administered.

On the 23rd, vomiting having continued all night, the sinapism was reapplied to the epigastrium, and bismuth in small doses given. The lower part of the wound has healed by primary union, but at the upper part there is a slight sanguinolent discharge. The edges of the incision somewhat erythematous. Sutures removed, and warm-water dressing applied over the upper parts.—Evening: Tongue dry and furred; pulse 108, sharp. Pain in the right iliac region more severe. No appearance of tension. Bowels freely opened. Urine passed in normal quantity, high coloured, and depositing lithates and purpurates.

24th.—Vomiting unabated. Severe griping pain in the abdomen, but not increased on pressure,

except in the right iliac region. Tongue dry; thirst great; pulse 120, soft and weak. During the night, morphia and afterwards sal volatile with small quantities of brandy were given, but both seemed rather to increase the nausea. A blister was then applied over the epigastrium, and this morning he was ordered ice internally, and leeches to the painful spot in the right iliac region.—Evening: Vomiting not so severe, but the erythematous blush has extended around the edges of the wound. All the points of suture were removed, and a large poultice applied.

26th.—The edges of the wound at the upper part have a dark-grey, sloughy appearance, with a very offensive discharge. Nausea still continues, but less severe. Pulse 126, soft and weak. Pain in the abdomen more severe, and is now everywhere increased on pressure. Bowels moved freely by an oleaginous enema, and a large poultice applied over the abdomen, and ordered a pill, containing opium powder, a quarter of a grain; proto-chloride of mercury, two grains; every three hours. Stimulants cautiously administered.—Evening: No amendment. Pulse weaker and intermitting. To have wine and brandy more frequently.

On the 26th he was rapidly sinking, and died on the morning of the 27th.

Post-mortem appearances, twenty-five hours after death.—Body emaciated; of a pale-yellowish hue. Rigor mortis marked. An incision, seven inches in length, extended on the right side, from three inches above the pubis to the lower part of the scrotum; edges everted; of an ash grey colour. On extending the incision in the direction of the spermatic cord, the cellular tissue around the inguinal canal was found extensively infiltrated and gangrenous, the sloughing reaching down to the peritoneum. A large clot of blood, partially broken down, was found to occupy the right iliac fossa, having evidently passed inwards through the internal ring, and been directed downwards by the peritoneum between the latter and the transversalis fascia. Opposite the internal ring, a small perforation of the peritoneum was found, barely admitting the point of the fore-finger; outline of the opening ragged, and here the parietal layer of the peritoneum was firmly adherent to the visceral by bands of recent lymph. On opening the cavity of the peritoneum, the results of intense peritonitis were apparent, the folds of the intestine being covered and agglutinated together by layers of recent lymph, which covered, more or less, all the abdominal viscera, except the stomach and spleen. Liver normal in size; rather pale. Kidney healthy. Mucous membrane of stomach simply congested. Lungs emphysematous; very dry. Heart small; weighed seven ounces. Valves healthy.

The tumour, which weighed six pounds and a half, and measured nine inches longitudinally and four and a half inches transversely, was found to be an admirable specimen of cephaloma, containing numerous cysts filled with glairy matter, one of which, as already mentioned, had extended into the inguinal canal. The tumour, however, was found not to arise from the testicle, but from the

membranes of the cord immediately above the epididymus, the testicle lying quite free below the tumour, surrounded by a quantity of serous fluid in the tunica vaginalis. Under the microscope, portions of the tumour presented large nucleated cells, containing two and occasionally three large nuclei.

Remarks.—I have given the details of this case at considerable length, from their manifold points of interest. In such scrotal tumours it is a very unusual occurrence to find the testicle itself free from disease, the morbid growth in this instance having been entirely confined to the membranes of the cord, and this confirms the accuracy of the statement made by the man himself, that until within three weeks from the date of his admission to the hospital the testicle could be felt separate from the tumour and below it; its apparent incorporation when he arrived here arose from the subsequent effusion of serum into the sac of the tunica vaginalis. The cause of the fatal result of the operation is, I believe, without an analogue in the records of surgery—viz. acute peritonitis, arising not as was at first supposed from extension of the inflammatory process from the wound, nor from injury to the peritoneum itself, in the necessarily very high division of the cord, but from hæmorrhage taking place internally, separating the connexions of the parietal peritoneum with the transversalis fascia, and forming a coagulum in the iliac fossa, which, partly from the process of disintegration, but mainly, I believe, from its mechanical pressure, induced ulceration and subsequent perforation of the peritoneum. The ragged appearance of the edges of the ulcerated point, the absence of blood in any shape in the cavity of the peritoneum, together with the course observed in the symptoms, are sufficient to overthrow the supposition of injury to the peritoneum having taken place during the operation—an accident which, however, as already detailed, had been most sedulously guarded against. I am aware that Mr. Curling and other writers on this subject have mentioned internal hæmorrhage as an occasional occurrence after this operation; but I do not know of any case in which this hæmorrhage was followed by ulceration and subsequent general inflammation of the peritoneum. The appearances revealed by dissection easily accounted for the symptoms observed, although the indications for treatment during life were by no means clear. Although there was constant pain above Poupart's ligament, no swelling or tension existed to indicate the accumulation of blood beneath, and leeches were not applied, lest the tendency to erysipelas along the edges of the wound should be aggravated by the irritation of the leech-bites. When the symptoms of peritonitis became general on the morning of the 25th, when perforation probably took place, bloodletting was contraindicated by the patient's extreme state of exhaustion, requiring, especially in the latter stage, the free use of stimulants. The obstinate and intractable vomiting was due at the commencement, in all probability, to the chloroform, and afterwards kept up from

sympathy or irritation, as the peritoneal coat of the stomach does not seem to have participated in the general inflammation.

CASE 8.—Osteo-carcinoma of the Left Femur and Os Ilium, with Cancerous Affection of all the Internal Viscera; Death.—B. M'K.—, aged forty-eight, married, from Dumbartonshire, admitted to the Royal Infirmary, under the care of Mr. Spence, January 4th, 1856. Is of healthy parentage to the best of her knowledge, but several of her brothers and sisters have suffered from various affections, all apparently, from her description, of a strumous nature; two of her family have been idiots from birth. She has borne three children, only one of whom survived infancy. Her own general health was excellent until about twelve months previous to the present date, when, without any intimation or apparent cause, she was seized with hæmatemesis, bringing up nearly a pint and a half of dark-coloured, clotted blood. The hæmatemesis recurred the following day, but in less quantity, and again two days afterwards. Since then she has been subject to slight cough, unattended by hæmoptysis, and the catamenia have only appeared thrice, the last occasion being eight days ago. About nine weeks ago, after having exerted herself considerably in attempting to raise a heavy weight, she suddenly felt a sharp pain in the left hip, which she fancied was rheumatic, and treated it by stimulating liniments. The pain, however, became more severe and somewhat lancinating in character, and about the same time she observed a small, hard swelling at the junction of the upper with the middle third of the thigh. The limb now became attenuated and slightly shorter than the right, so as to confine her to bed. Three weeks ago the whole limb became suddenly swollen from the hip to the knee-joint, and on the subsidence of this swelling she found that the tumour of the thigh was greatly enlarged, although less painful than before, and that the thigh was bent upon itself.

On admission, her general appearance was cachectic; skin sallow, but not markedly so; not much emaciation. The left inferior extremity was found to be nearly three inches shorter than the right, this shortening being due to the femur being bent upon itself nearly at right angles at the upper part of its middle third. The great trochanter was pushed upwards and somewhat inwards, but otherwise retained its normal relation to the anterior superior spinous process of the ilium. At the point of flexion, a tumour is situated as large as a full-sized fetal head, evidently arising from the bone, equable over the surface, except that at one point distinct fluctuation can be felt. No enlarged veins over the surface of the tumour, and the integuments were not implicated. Fracture of the femur had taken place at this point, crepitus being distinctly felt in the tumour, with preternatural mobility of the lower portion of the thigh. No enlarged glands in the groin, but she stated that nine weeks before a small abscess formed on the inner aspect of the thigh, opening spontaneously. A second tumour, of the dimensions of a large hen's egg, was found

arising from the anterior superior spinous process of the left ilium, partially moveable, but evidently firmly attached to the bone. It felt very dense, but caused no uneasiness to the patient, who was not aware of its existence. Tongue moist; bowels rather costive; appetite impaired. No difficulty felt in swallowing, nor pain after the food is taken into the stomach. Is not in general subject to nausea, but has retched and vomited a good deal for the last two mornings, the ejecta being slightly tinged with blood. No pain on pressure being made over the abdomen, and no tumour nor hardness of any kind to be detected by palpation. Hepatic dulness normal. Cardiac dulness normal; sounds healthy, communicated somewhat more distinctly over the right side of the chest than over the left. Pulse 102, soft, small, and regular. Chest anteriorly, normally resonant on percussion, rather unduly so below the right clavicle, and at the second right interspace a faint *crack-pot* sound is elicited on firm percussion during expiration; posteriorly, percussion sounds normal. Respiratory murmur universally rather harsh in character, markedly so below the right clavicle. No prolongation of expiration. Vocal resonance and fremitus more marked below the right clavicle than the left. Had a good deal of cough, with scanty mucous expectoration. Catamenia very irregular. Urine high coloured, depositing lithates in large quantity. Skin slightly sallow. At one time she suffered a good deal from coldness of feet. Slept well; not subject to headache.

It was not considered advisable to interfere in this case by operation, and the affected limb was therefore merely fastened to a soft pillow to prevent motion, and an expectorant mixture prescribed.

She sank rapidly, and died on the 2nd of February.

Post-mortem Examination, forty-eight hours after death.—Body much emaciated. On removing the femur, the tumour was found to be partly solid, and partly composed of a large cyst filled with a glairy brownish fluid; the hard portion was carcinomatous in nature, presenting, under the microscope, indubitable cancer cells, and arising from the centre of the shaft, the external layer of the bone having expanded so as to form an osseous shell around the larger portion of the tumour. Another tumour of the same nature, but springing from the periosteum, was found beside the smaller trochanter; and on making a section of the upper part of the shaft of the femur, a third growth, about the size of a large hazel-nut, was found in the medullary cavity, at the junction of the neck of the bone with the shaft. The tumour previously mentioned as attached to the anterior superior spinous process of the ilium was of the same nature as the other; a thin section of the bone at the point of attachment, under the microscope, presented numerous nucleated cells. The left lung was perfectly healthy, but at the upper part of the right lung several enlarged bronchial glands were found in the lung substance, infiltrated with cancerous matter; the pleura on both sides was studded with

spots of carcinoma. The heart was normal in size, but containing in its muscular substance, immediately below the pericardial covering, three or four smooth masses of carcinoma, while the pericardium presented numerous tubercles of an analogous nature. A large cancerous mass, equal in size to a clenched fist, surrounded the trachea above the point of bifurcation, considerably diminishing its calibre, and compressing the pulmonary artery to such an extent that a quill could with difficulty be passed along the vessel. The liver was of normal dimensions, affording over its surface a well-marked example of Farre's tubercles. On the posterior surface of the stomach, a large mass of carcinoma extended along two-thirds of the greater curvature, investing also the duodenum, and incorporated with the substance of the pancreas. The kidneys were enlarged, and full of the same heterologous matter; both supra-renal capsules were masses of cancer. No affection of the mesenteric glands. Large intestine healthy. Uterus and right ovary perfectly carcinomatous; left ovary free from disease, containing a recent corpus luteum (she had menstruated five days before her death); traces of cancerous matter around the neck of the bladder. The head was not examined.

Remarks.—The malignant nature of the enlargement on the femur was sufficiently indicated by the age of the patient and the appearance of the swelling itself, coupled with its rapid growth and the formation of the secondary tumour on the ilium, but we could hardly have anticipated finding such an immense amount of disease in the thoracic and abdominal viscera. The signs derived from physical examination of the chest were too slight to point out any important lesion in any of those organs. The abnormal growths were too deeply seated to afford any evidence from percussion or palpation, while general symptoms were almost entirely wanting. Indeed, it is almost incredible that such extensive disease in all the important organs of the body could have existed without occasioning more marked derangement of the general health. The fact of hæmatemesis having taken place ten months previously was certainly significant; but as the catamenia had disappeared about the same time, and the hæmatemesis lasted for only four days, its occurrence might fairly be attributed to vicarious menstruation.

Up to the day of her death respiration continued unembarrassed, notwithstanding the trachea having, as above mentioned, been so greatly compressed by the mass of cancer surrounding it. Neither could the most careful auscultation detect any murmur along the pulmonary artery, although its diameter was barely one-fourth of that of the aorta. The occurrence of the small tumour in the neck of the femur adds another to the many proofs already recorded of the correctness of the principle inculcated by surgeons, as to the absolute necessity, when a limb requires amputation on account of a malignant growth connected with bone, that the whole of the bone so implicated should be removed. In the case before us had, amputation been performed through the trochanters, the se-

condary tumour would, without doubt, have manifested itself before the stump would have healed. It may also be observed, in connexion with Dr. Addison's interesting researches into the relation existing between discoloration of the skin and diseased supra-renal capsules, that in this case, although these bodies had totally disappeared, being converted into masses of carcinoma, the skin presented nothing beyond the slight yellowish tinge constantly seen to accompany malignant affection of any part of the body, and that even not in any marked degree.

CASE 4.—Encysted Tumour on the Forearm; Excision; Cure.—G. P——, aged thirty-eight; native of Dysart; admitted to the Royal Infirmary March 31st, 1856. Patient states that, nine months ago, he for the first time noticed a small swelling on the flexor surface of the right forearm. It appeared to him quite solid from the commencement, and at first it grew very slowly. Within the last three months, however, it has increased in size, but without causing him much pain or uneasiness, except that latterly the integument covering the tumour has ulcerated in one or two places, from which slight venous oozing has occasionally occurred.

On admission, the tumour was found to be about the size of a small orange, situated over the middle third of the forearm. It was irregular in outline, presenting several points of ulceration, and had a dense stony feel, altogether strongly resembling a malignant growth. It was, however, entirely limited to the skin itself, moving freely over the deeper tissues, and not interfering in any way with the action of the muscles of the forearm. No other growth could be found in any part of the body, and the man's general health was excellent. Removal of the tumour was recommended, and assented to by the patient; this was accordingly performed by two elliptical incisions, removing the integuments along with it, as they were found to cohere too closely to admit of dissection from it. As was anticipated, the tumour was perfectly limited to the true skin, the subcutaneous veins of the forearm passing beneath, and being wholly unconnected with it. Cold water dressing was applied to the wound, and the patient, having made an uninterrupted recovery, was dismissed cured on the 22nd of April.

Remarks.—This tumour strongly simulated a malignant growth, but on cutting into its substance after excision, it was found to be a simple encysted tumour, closely resembling those found on the outer edge of the ciliary ridge, and containing, like them, atheromatous matter, but firmer and of a denser consistence than their contents are usually found to be; a large portion of it, indeed, was found to be calcareous, evolving carbonic acid gas on the addition of strong nitric acid. Under the microscope nothing was observable but masses of earthy matter. No appearance of hairs or hair-bulbs could be made out by the most careful examination. The cyst itself, although very thin, was firm and inelastic, and closely incorporated with the superficial integument. The case is inte-

resting from the unusual site of the tumour, and its great resemblance to a malignant growth, both as regards previous history and its general appearance, more especially the ulcerated points arising from the impicature of the integuments, although these, again, were somewhat nullified by its great mobility and evident limitation to the true skin.

(To be continued.)

A Mirror

OF THE PRACTICE OF MEDICINE AND SURGERY, IN THE HOSPITALS OF LONDON.

Nulla est alia pro certo noscendi via, nisi quam plurimas et morborum, et dissectionum historias, tam aliorum proprias, collectas habere et inter se comparare.—MORCAENT. De Sed. et Caus. Morb. lib. 14. Proœmium.

GUYS' HOSPITAL.

Malignant Tumour over the Left Loin, Successfully Treated.

(Under the care of Mr. CALLAWAY.)

THE following case is one of tumour of a malignant nature, situated in the left loin, which was successfully removed by Mr. Callaway. When the man was brought into the operating theatre our first impression was, on seeing the peculiar external characters presented by the growth, that it might be fibro-nucleated, similar to the example recorded in our "Mirror," under Mr. Paget's care at St. Bartholomew's. A microscopic examination, however, displayed cells of a very different character, being quite malignant in their aspect, although a section of the tumour itself displayed a fibrous appearance, but with the well-known cancerous juice on scraping it with a scalpel. When being removed, it was found to be deeply imbedded in muscular structure, and was excessively painful; chloroform was not given, in consequence of the thoracic complication.

A man aged sixty, following the occupation of a porter, was admitted under Mr. Callaway with a tumour over the left lumbar region. For years he has been afflicted with asthma, but his habits were temperate, and he spoke of his general health as being good. The tumour occupied the left lumbar region, extending from the crest of the ilium to the last rib; it was hard to the touch, ovoid in form, in colour somewhat purple, in size about equal to that of the fist; it was very moveable, but the integuments over it were adherent to it. Six months since, he first noticed it as being about the size of a walnut, since which time it has gradually increased to its present magnitude. He has never suffered any pain from it.

On the 3d of June, it was removed by two elliptical incisions, inclosing the adherent integument; it was found to be more connected with the muscular tissue upon which it rested than had been anticipated. No attempt was made to bring the edges of the wound together, owing to the

hiatus between the cut edges, and the constant movements of the subjacent structures.

On making a section of the tumour, it appeared to be of a fibrous character; but on a portion being submitted to microscopical investigation, it was evidently a new growth, of a well-marked malignant character.

The progress of the patient since the operation has been pretty satisfactory; the large surface left by the tumour's removal has very considerably contracted, and in a little time will be quite healed up.

Congenital Fibrous Tumour of the Thumb of a Boy, the size of a Pear; Successful Removal.

(Under the care of Mr. BIRKETT.)

Another case of tumour was brought before the notice of the pupils a fortnight before the removal of that in the previous case, by Mr. Birkett, which possessed a well-marked fibrous appearance on removal, thus differing from Mr. Callaway's, but more especially in its being benign in nature. It was one of those congenital growths so commonly found on the hands, but assuming an unusual position and form on the thumb. The patient was a lad, aged about fourteen years, with a tumour situated on the dorsal aspect of the thumb, about the size and shape of a pear; it was not adherent, had been present at birth, but not then so large, and latterly it had somewhat increased in size. Mr. Birkett believed it would turn out to be fibrous, although enchondroma is so frequently found in connexion with the fingers. On removal, on the 20th of May, under chloroform, it appeared soft and uniform, and decidedly fibrous in its structure.

This case went on to a satisfactory termination, with the possession of a good, useful thumb.

Compound Comminuted Fracture of the Hand from Machinery; Amputation of Three Fingers; Extensive Inflammation up the Whole Arm; Subsequent Amputation above the Wrist-Joint; Recovery.

(Under the care of Mr. CALLAWAY.)

In a previous "Mirror," we presented a very successful example of conservative surgery under Mr. Fergusson's care, at King's College, where the foot was preserved notwithstanding very severe laceration from the machinery of a windmill. The subjoined case is one somewhat similar—perhaps the injury was even more severe—but an effort was made to preserve the thumb and little finger, the three others being amputated. Unfortunately, extensive inflammation of the entire arm set in, with considerable constitutional disturbance, and sloughing of the little finger. With unremitting attention and skill, the patient's life was saved, and amputation of the wrist was had recourse to at a later occasion, with the most satisfactory results. No one can foresee the occurrence of inflammation in many of these cases of severe injury—certainly not to the great extent that is sometimes witnessed. This ought not to discourage any surgeon in a laudable desire to save a valuable member, so

very essential to a lad (as in this case) who has to earn his livelihood by the use of his hands.

A. M—, aged fifteen, was admitted with a severe injury to the right hand. Whilst feeding some machinery, the right hand became entangled between two heated rollers, and laceration of the soft parts upon either aspect was the result. All the fingers were injured, the three central ones most severely. The thumb and little finger had escaped with a less amount. Two, if not three, central metacarpal bones were fractured. The index, middle, and ring fingers were amputated at their metacarpo-phalangeal articulation, and it was determined to endeavour to save the thumb and little finger. Extensive inflammation of the whole arm, with profuse suppuration, followed; the little finger sloughed away, and much constitutional irritation ensued. He was treated with anodynes and tonics, and generous diet, and an adequate amount of stimulus was afforded him.

He continued to improve up to the 4th of May, when the hand, although slowly healing, presented so deformed an appearance, and gave so little promise of future utility, that amputation was suggested, acceded to, and performed. The section of the limb was made immediately above the wrist-joint, the bone being covered by an anterior and a posterior flap. He had some recurrence of cellular inflammation up the forearm, but was, at the end of seven weeks after the operation, enabled to leave the hospital cured. It may be observed, that although the thumb healed, it was drawn backwards towards the radius, and was totally useless.

Resection of the Terminal Joint of the Great Toe.

An idiot boy, aged sixteen, of remarkably feeble constitutional power, became, during the winter, the subject of an aggravated chilblain over the last joint of the great toe. Inflammation and sloughing took place. The articulation was opened by Mr. Callaway, on the 8th of April, and both bones were exposed, and protruded. The base of one, and the head of the other, were removed by a strong pair of bone forceps, their cut surfaces were brought into contact, and the foot supported by a splint. Two abscesses, following some cellular inflammation, were opened upon the dorsum of the foot, and above the ankle. He was supported with liberal diet, and other necessary medicine; and although he convalesced slowly, he recovered with a most useful foot. He is now one of the most active pupils at the Asylum.

ST. GEORGE'S HOSPITAL.

Tracheotomy in a Case of Croup, with Intense Dyspnoea, by Mr. Pollock; Removal of a Complete Cylinder and Shreds of False Membrane; Beneficial Effects for a time.

(Under the care of Dr. NAIRNE.)

It is well known that tracheitis or croup most generally runs its course rapidly, proving fatal

sometimes within twenty-four, and often within forty-eight hours, although it may continue for several days, when it terminates either in death or recovery. Now, the interesting point which surgeons have to consider, when medical treatment has proved of no avail, and the symptoms are so far urgent that death will speedily take place, is, whether the operation of tracheotomy will prove of any avail, either in prolonging life, or saving it altogether. We use the term prolonging life, because the results of the operation, with really very few exceptions, have proved fatal, in consequence of the extension of the inflammation into the bronchial tubes, together with the formation of new false membranes, and other causes. Notwithstanding this, however, as some successful cases have been recorded, amongst others, we may refer to two in the third and sixth volumes of the "Medico-Chirurgical Transactions," in which the cases were apparently desperate; and if that condition is not present which Dr. Richardson has been the first to draw attention to—namely, the formation of a fibrous concretion within the heart—this proceeding may with every propriety be attempted. As a *dernier ressort*, we think very few would hesitate in putting it into practice, for most assuredly does death immediately occur if it is not performed, and as certainly is life prolonged even for twenty-four or forty-eight hours after its performance, sometimes longer, as in a case at the Hospital for Sick Children, in Ormond-street (see former number of THE LANCET) with the possible chance of recovery. Dr. West has observed that there are few cases of croup in which an operation is justifiable; but when the most energetic means have failed to arrest the disease, the operation in such cases should not be put off too long. When we saw the little patient whose case is annexed, he appeared to be in as favourable a condition for tracheotomy as could be desired; and although we had no opportunity of ascertaining this point, we believed at the time that the circulation through the heart was free and uninterrupted, and this afterwards proved to be the case. The immediate ejection of numerous shreds of lymph, with a large and distinct cylindrical portion, gave great relief, and life was prolonged twenty-eight hours after the operation, which was performed with remarkable celerity by Mr. Pollock, and was followed, as is usual in these cases, by some bleeding, but not of any consequence.

Henry S—, aged five years, was admitted into the hospital on the 24th of April, under Dr. Nairne. The mother stated that the child was well till the 20th; he then complained of sore throat, which was somewhat better on the 22nd, and he was able to play about. On the 28th, about midday, the child was suddenly seized with dyspnoea, for which leeches were applied to the throat. The breathing became worse, and the following day the child was admitted into the hospital. The face was pale and anxious; pulse 114; tongue coated in the centre and red at the edges; respiration very stridulous. An emetic was given, but took no effect, and was to have been repeated in half

an hour, but the oppression of the breathing became so intense and laboured, and the child appeared in such a critical state, that before the dose was given the larynx was opened by Mr. Pollock, the crico-thyroid membrane and the cricoid cartilage being cut through, and a tube introduced and kept in the trachea. The child immediately became tranquil, and the countenance greatly relieved; and after getting over the first shock of the operation, the pulse increased in power, and continued regular and full throughout the day. Several shreds of lymph were coughed up immediately through the opening, one of which was a complete tube in shape. The child slept at intervals, and was quite comfortable at night. Next morning the child was comfortable, and breathing easily; the pulse kept up, and tongue white. The tube was constantly cleansed, and occasionally removed for the purpose. Owing to this, in the afternoon an attempt was made by the house-surgeon to introduce a new tube; but some difficulty being experienced, as well as on account of the difficulty of breathing, the opening was slightly enlarged. There was a good deal of bleeding, and some of the blood must have trickled into the trachea. The child soon afterwards died.

The incision had divided the crico-thyroid membrane, the cricoid cartilage, the two upper rings of the trachea, and the isthmus of the thyroid. The soft palate and tonsils were found ulcerated, and the latter covered with a thick layer of recent lymph. The mucous lining of the epiglottis and of the larynx was throughout covered with a similarly very thick layer of false membrane, and the aryteno-epiglottidean folds were quite oedematous. The lining membrane of the trachea was covered with a thin layer of false membrane, mixed up with much tenacious mucus and blood, which stained the membrane of a red colour; and in the larger bronchial tubes a similar appearance was found, but this existed to a much less extent. The lungs were very congested, and the smaller bronchial tubes contained much blood mixed with thick tenacious mucus. The heart was healthy.

Syphilitic Ulceration of the Larynx, producing Urgent Dyspnoea and threatening Suffocation, the Patient being at the full period of Pregnancy; Tracheotomy; Delivery the same night without inconvenience; Complete Recovery.

(Under the care of Mr. POLLOCK.)

This case forms a striking contrast to the preceding one, in that the difficulty of breathing depended upon a totally different cause, in the person of an elderly female.

The interesting points worthy of mention are, the syphilitic origin of the obstruction to respiration, the temporary relief of the opening in the larynx, the radical improvement during its existence from the treatment constitutionally, also the fact of the mother being taken in labour, and wearing the tube during the progress of the birth. The undoubted syphilitic condition of the mother not giving evidence of disease in the child until some weeks after its birth, might open the question whe-

ther the milk of the mother did not influence the condition of the infant already infected by the poisoned blood of the mother.

The first case is interesting as a contrast to the present, as the operation, though highly beneficial at the time, and certainly having prolonged life, is not by any means so uniformly or generally effective as when had recourse to in the more chronic affections of the trachea and larynx.

Elizabeth M—, aged thirty-six, was admitted on January 21st, 1856, with cough, huskiness of voice, and much expectoration. Under treatment she did not improve, but the huskiness of voice increased, and with it some increasing obstruction to respiration was evidently taking place. On the morning of the 28rd of February this difficulty was almost complete; she could not lie or sit down, and was struggling for breath, standing up and supported on each side by a nurse, her face being very dusky, and her distress of countenance most acute. Mr. Pollock was requested to see her, and immediately proceeded to open the larynx. This was only effected after much trouble, in consequence of the bleeding from some large and much congested veins and the restlessness of the patient. Great relief was afforded immediately the opening was made into the larynx, and the countenance soon recovered a composed and natural aspect. The patient was near the period of her confinement, and in the evening labour came on, and she was delivered safely the same night, without any inconvenience from the presence of the tube in the trachea.

The cause of the difficulty in respiration appeared to be from old syphilitic affection of the larynx, a rupial sore being observed on the left arm, which she stated had lately made its appearance. She was placed under treatment with sarsaparilla and iodide of potassium, and gradually improved without any bad symptoms. After wearing the tube over seven weeks, she found she could breathe without its being any longer kept in, and the opening in the larynx was allowed to heal by the tube being withdrawn. She has quite recovered her health, and, though her voice is still rather husky, she speaks without difficulty, and her respiration is quite free at this date, the 7th of June.

The infant, though not born with any appearance of secondary eruption, some few weeks after birth was found affected with an unequivocal eruption of a syphilitic character, and has been under treatment since for this.

CHARING-CROSS HOSPITAL.

Albuminuria and Purpura; Ammoniacal odour of the Breath, and detection of the Carbonate of Ammonia.

(Under the care of Dr. WILLSHIRE.)

THE attention of the students and ourselves has been drawn by Dr. Willshire to some points of interest in a case transferred to him by Mr. Hancock, under whose care the girl had previously been for

an affection of the eyes. We prefix the following history of the patient by Mr. Dickin, clinical clerk :

Martha G—, fourteen years old, states that six months ago she had a violent cold, attended with rheumatism and inflammation of her eyes. The latter left her blind. She went to the Ophthalmic Hospital, where she has been under treatment. A fortnight back she had an attack of acute rheumatism in her left knee, which confined her in bed for a week, but at present she has no pain there. A week after she had severe darting pains in her feet and legs, which became so tender and swollen that she could not bear her stockings on. Last Sunday morning she observed that her feet and legs were covered with red spots, and felt and continued to feel very cold and painful about the ankles when moved or touched. Almost as long as she can remember she has been subject to bleeding from the nose, scarcely a week passing but that she so bled, and within the last fortnight she has lost blood nearly every day. The bleeding comes on without any particular excitement, often when she is sitting quiet; the blood comes drop by drop, continues for about ten minutes, and then leaves off, though no remedy is resorted to. She has never bled from any other part, though she has heard her mother say she bled very much when she had a tooth out, and once or twice lately her urine has been "terrible red." She has never been "regular," nor has she had scarlet-fever. She has been taking turpentine lately by order of Mr. Hancock. The bowels are rather confined. On examining the patient, it is seen that both legs and feet have a purple, leaden look, are very cedematous, (particularly the left;) the purpuratic spots extend all up her legs, and are very thick here and there. She has some on the trunk, but more on her arms. Some of the spots are very minute, others as large as a "sixpence." Her gums are not spongy, nor is there bleeding nor exudation from the lining membrane of the mouth. The tongue is furred. On Dr. Willshire remarking that her breath had a peculiar odour, something like an urinous or ammoniacal one, she replied that her breath seemed "like pepper" to her. On holding a glass rod dipped in strong hydrochloric acid before her mouth as she breathed, cloudy fumes of hydrochlorate of ammonia became distinctly visible; reddened litmus-paper held in the same way had its blue colour restored, which was again reddened when held to the fire, proving the alkaline reaction to have been due to ammonia. The urine is 1.020 specific gravity, and in quantity about a pint in twenty-four hours; it has a marked acid reaction, and affords a copious deposit from heat and nitric acid. There appear no blood-globules in it, but some waxy or granulated moulds of the "tubuli" are believed to be seen. The general aspect of the patient is pale and anæmic, and there is very slight cedema of the face. The pulse is 100. There is a distinct systolic bruit at the base of the heart, somewhat modified half way (along the course of the heart's long axis) between the base and apex. At the latter the cardiac sounds are clear and distinct, but a *doubtful*

systolic bruit is also heard there. There is much opacity of the cornea, the result of the inflammation before alluded to. Ordered to have full diet, with beer, and as much fresh vegetable matter as she chooses, and the following medicine three times a day:—Muriated tincture of iron, fifteen minims; dilute hydrochloric acid, ten minims; infusion of cinchona, an ounce and a half; besides a scruple of the bitartrate of potass every night. Cathartic house medicine when required.

In some clinical observations to the students, Dr. Willshire remarked that this case presented some points worthy of much consideration. In the first place, it confirmed an observation of Huxham and other old writers, since denied by others, that in what they called "a dissolved and putrid condition of the blood," the breath had a nasty or urinous odour. Secondly, it corroborated the far more recent assertion of Frerichs, that in certain forms and stages of albuminuria, carbonate of ammonia, a resultant of the decomposition of urea, is contained in the expired breath of the patient. Latterly, too, Drs. McDowell and Lees had brought forward the idea that *urea*, or the muriate or carbonate of ammonia, is eliminated by the gastric mucous membrane, giving rise to the vomiting in Bright's disease and in cholera. An important question, also, was that of the connexion of cause and effect between the phenomena, or at least of the relative antecedence and sequence of the events in the procession of morbid states. Was, e. g., the disease of the kidney the first diseased element, the retention of urea, and its conversion into the carbonate of ammonia in the blood, the second, and the depravation of this fluid by the salt in question the third, giving rise, as one of the necessary causative conditions, to the hæmorrhage or purpura? He would recall to their minds, that throughout Huxham's dissertation, it was taught how markedly just such an effect was induced by the use of what the author called "the volatile-alkali salts." In Dr. Goldie's essay, some cases of purpura were alluded to, in which there was a deficiency of urea, and an excess of albumen, in the urine. Then, might not the purpura be the *first*, and the diseased kidney, or albuminuria, the *following* morbid conditions? Dr. G. Johnson had alluded to the connexion of diseased kidney and albuminous urine with purpura, and speaks of the latter as a *cause of renal disease*. Had not the urine been watched, it might have been thought, perhaps, that there was simply hæmaturia, and hence the albumen, and no kidney disease. Again, what effect may the turpentine have had in influencing the function of the kidney, and under the effect of which drug, it should be remembered, also, as a point of importance in therapeutics, that purpuratic hæmorrhage had come on. The connexion of rheumatism, too, with a state of the blood in which purpura and albuminuria arose should not be forgotten.

ST. THOMAS'S HOSPITAL.

Very Large Aneurism of the External and Common Iliac Arteries, occupying a considerable Portion of the Right Half of the Abdomen; Formidable Operation of Deligation of the Abdominal Aorta just above its Bifurcation; Survival of the Patient Forty-Three Hours.

(Under the care of Mr. SOUTH.)

On the 21st of June Mr. South ligatured the trunk of the abdominal aorta a little above its bifurcation, for a large aneurism of the external and common iliac arteries of the right side, in a strong, healthy, and apparently robust young man, aged twenty-eight years. The aneurismal tumour filled the right iliac and lumbar regions, and occupied a considerable portion of the right half of the abdomen, rising above the umbilicus nearly as high up as the cartilages of the ribs, and extending close to the median line. Pulsation in the tumour could be felt with great difficulty, but by the stethoscope a very distinct aneurismal bruit could be heard; sensation was almost completely lost in the whole of the right leg, in consequence of the pressure exercised by the tumour on the nerves emerging from the pelvis on that side. The aneurism had existed for some months, and the young man had been an inmate of St. Thomas's Hospital for the past few weeks. The early history of the case was somewhat obscure, but he had been subjected to employment of a very laborious and fatiguing kind. During his stay in the hospital it had increased rapidly in size, and was extending in every direction; it became necessary, therefore, to have recourse to surgical measures without delay. The question of tying the common iliac was discussed by Mr. South, with Mr. Green and his colleagues, Mr. Solly, Mr. Simon, and Mr. Le Gros Clark. The uncertainty as to whether the common iliac was involved, and also the difficulty of getting at it, from the large size of the tumour, induced Mr. South to select the operation of deligating the aorta, which was done with the assistance of his colleagues, in the presence of a large number of students from the various London hospitals and many eminent members of the profession.

The left side of the abdomen was opened by an incision, commencing a little above the anterior superior spinous process of the ilium, and extending upwards to the cartilage of the tenth rib. The various intervening structures were severally cut through until the peritoneum was reached, which membrane was carefully raised by Mr. Green with his hands, and the wound kept open, whilst Mr. South passed a ligature around the aorta from the right to the left side. There was very little time lost in the performance of this highly important operation, which was effected in a very beautiful and satisfactory manner, in consequence of the extremely quiet condition of the patient, who was completely under the influence of chloroform.

This was done at two o'clock on Saturday, the 21st of June. The young man went on remarkably well after it; but he died at nine o'clock on the morning of Monday, the 23rd, having survived

the operation forty-three hours. At the autopsy the tumour was found to be a false and diffused aneurism, depending upon disease of the coats of the iliac artery, with, we believe, laceration.

As we purpose giving all the particulars of this very important and interesting case in our next number, we shall reserve any remarks we may have to make till then.

ST. BARTHOLOMEW'S HOSPITAL.

Glandular Tumour occupying the floor of the Orbit, with Protrusion of the Globe of the Eye forwards, and Eversion of the lower Eyelid, following a Blow; Successful Removal.

(Under the care of Mr. LAWRENCE.)

THE diagnosis of an orbital tumour is often attended with some difficulty, unless it projects so far as to admit of careful examination by the touch; and even then, as Mr. Tyrrel has observed, an accurate opinion cannot be formed, in many cases, unless other symptoms have been, or are, present to aid the judgment. The determination of the kind of tumour is a matter to be first attempted, as influencing more or less the propriety of an operation for its removal: thus, whether it is a simple, an erectile, or a malignant tumour, using the classification of Professor Miller in his "Practice of Surgery." If a simple tumour, then it must either be a sarcomatous, a fibrous, fatty, or cystic tumour. In the accompanying case, Mr. Lawrence pronounced it a simple tumour; and so the result proved, but of a character differing somewhat from any of these, being mostly composed of glandular-like structure, with some condensed fatty tissue. Possessing these peculiarities, it was situated in a part of the orbit—its floor—where it might not have been expected; thus investing the case with a certain amount of interest. It removal was attended with much bleeding for some days after, but ultimately its progress was favourable.

In Mr. Walton's work on "Operative Ophthalmic Surgery," where the subject of orbital tumours is fully considered, he observes in relation to these growths, "that it would be bad surgery to undertake an operation for a comparatively insignificant tumour, one, perhaps, that merely protrudes the eye, but does not threaten mischief, when the effect would, in all probability, be injury or destruction of sight. At the same time, the sacrifice of the eyeball must not be regarded, if cerebral symptoms should arise from pressure on the brain through the roof of the orbit, from expansion of that cavity, or from absorption of its walls by a tumour."—(p. 326.)

In the case under consideration, it became a matter of some importance to remove the tumour, which had produced that prominence of the eyeball, and complete eversion of the lower eyelid, as to cause very great inconvenience, and, at times, much suffering. Moreover, the sight was completely lost; but we think, from this circumstance, the eyeball might have been removed with great propriety, although not absolutely a necessary pro-

cedure. The cure would have been more speedy had it been done. There were no distinct cerebral symptoms at any time, although the patient suffered occasionally from pain and epiphora.

Joseph M—, aged sixty years, admitted into Rayere ward on the 11th of April, 1856. About two years ago he slipped from off a chair, and struck the ball of the right eye, since which time the organ has been bad, and the sight completely lost. It has become slowly prominent, and attained considerable magnitude; sometimes it was affected with very severe pain. He was a patient at the Royal Westminster Ophthalmic Hospital, and other places. The eyeball was bulged out to such a degree as to resemble in size a small peach; it is covered with the upper eyelid, but the lower lid is completely everted, the globe being pressed forwards and upwards by a tumour, which Mr. Lawrence removed on the 12th of April, while the patient was under the influence of chloroform. It was the size of a hazel-nut, and in the course of removal was found to occupy the floor of the orbit, and to extend backwards, being attached to the deeper structures of the orbit by a sort of pedicle, which Mr. Lawrence snipped off. The removal was accompanied by a good deal of bleeding; the operation, however, was excessively easy, as the tumour was more or less isolated, and the finger readily passed at the back of the orbit. The bleeding being very copious, the orbit was stuffed with cotton wool to arrest it. The tumour appeared to be entire, surrounded by a sort of capsule; the piece behind, therefore, must merely have been a piece of loose orbital tissue. Mr. Lawrence was inclined to believe that all the tumour was removed. He would not, he said, venture upon an opinion as to its structure.

April 15th.—The patient has been doing well since the operation. The tumour proved to be glandular in structure, being composed of cells filled with small nuclei. A portion of it looked as if formed of the condensed fatty tissue of the orbit. There was nothing whatever malignant about it.

May 5th.—Frequent hæmorrhages have occurred from the orbit, necessitating pressure with the finger for some time to relieve it.

17th.—No further hæmorrhage has occurred for the last ten days, and the parts are rapidly healing; he is now sitting up, and likely to go on well.

31st.—The lower lid still remains everted; he has had hæmorrhage seven different times since operation, and became much reduced in consequence; he is now coming on very well; his general health is pretty fair; the eyeball is still somewhat prominent.

CENTRAL LONDON OPHTHALMIC HOSPITAL.

Cases of Impaired Vision.

(Under the care of Mr. HAYNES WALTON.)

How seldom do we hear the term "amaurosis" used by the surgeons of the modern ophthalmic school. According to most of the standard authors

of a past generation, almost all, if not all, of the instances of impaired vision, not attended with palpable objective symptoms, are designated amaurotic, the meaning of which was very differently received by the different masters; but, in the main, is used as synonymous with nervous blindness, or disease of the ocular nervous apparatus. After this came the fashionable theory of choroiditis; and the large mass of the cases that would have been considered amaurotic, were now considered to be so many of "choroiditis." Everybody seemed to have choroiditis—the over-fed and lazy lady of wealth, and the starved and over-worked milliner. But this was an improvement on what proceeded; for although there was often as great a mistake in the diagnosis, there was not generally in the treatment; and the more rational and more successful plan of raising a person who was depressed to a healthy standard was adopted, instead of the injurious one of salivation, bloodletting, setons, and starvation, although mercury was seldom excluded. A still better state of things exists, for now there is a more certain discrimination of affections heretofore little understood, or even recognised; and our remedial measures are now more sure. No one has laboured more in his public capacity as an hospital surgeon, or a teacher, to understand eye diseases, to render them intelligent to those who attend his practice, and to simplify treatment, than Mr. Walton, and the short notes that we have taken of the following case, as one of a class that we have seen him treat, may, we hope, be interesting and of use.

Asthenopia, and Long Sight, or Loss of Focal Adjustment.

A young woman, twenty years old, thin and feeble, complained that after the use of her needle for about an hour the stitches grew dim, and soon were lost altogether, but by rubbing the eyes the work was again clear. Besides this, she was obliged to hold the needle at the distance of twelve or fourteen inches. The sight never tired from looking at large or distant objects. The defect had been coming on for two years, and had rapidly increased. When she worked or read in an artificial light the symptoms were worse. A couple of months ago she took to wearing convex spectacles and got some temporary relief. Repose of the eyes for a day was attended with much benefit, but her position in life had prevented her from taking any rest except on Sunday. No objective symptoms whatever could be discovered; the eyes were bright, and the pupils active.

We could not select a better example of this common affection, and which, in the present state of our knowledge, is well expressed by the term "asthenopia," or want of strength of the eyes or eyes, as it is a disease that attacks both. Although for the most part it is confined to those who over-work their eyes on minute objects, any one may be the subject of it. Mr. Walton has pointed out to us patients of great strength, whose employments were of a strictly manual nature, not requiring the exercise of accurate or at least minute vision, that have been so affected. By those who have most

investigated the subject, the conclusion arrived at is, that the retina and the adjusting apparatus of the eye are both at fault. That the former is not solely influenced, is proved by the ready recognition of objects after a brief repose, even of a few seconds. In general, persons attribute the relief not to the rest of the eye, but to rubbing it. After a careful examination, Mr. Walton decided that the necessity for holding the needle at a distance beyond that usually required by a person of the patient's age, was not due to mere "presbyopia" or long sight, the kind of defective vision incidental to advancing life, but literally to a loss of focal adjustment, a very common accompaniment of "asthenopia." The necessity of a proper discrimination of the affection must be apparent, and, as a rule, any surgeon who is aware of the nature of its symptoms will readily detect it; but this is not always the case, and on a future occasion we propose to give a series of cases, with some of the more ordinary complications that attend it.

We have been induced to select the present example, because the treatment prescribed was adopted, and was beneficial. The hospital formula for iron, which is merely the sulphate in solution, was prescribed, and the girl's mother was prevailed on to change her daughter's description of work to that which was less trying to the eyes—namely, the making of coarse garments of white or light-coloured materials. Besides, she ceased to work by artificial light; exercise was taken daily; the spectacles were discontinued. In six weeks from the commencement of this plan, the patient's whole appearance was different, and she said that her eyes hardly troubled her. A systematic temporary rest of the sight was enjoined. It is an essential adjunct in the treatment, and as Mr. Tyrrell introduced it, we give him the credit he deserves. In his remarks on the affection which is considered under the head of "Temporary Congestion of the Choroid," after a system of treatment in accordance with his idea of the disease, including bloodletting, irritation, mercury, &c., he writes more judiciously,—

"Supposing a patient could work for an hour, but not longer, without producing disturbance of vision, he should then be directed to work only for half an hour at a time, and to obtain intervals of rest of a quarter of an hour each. He can thus work for two-thirds of his usual time, while his cure proceeds. The period to be employed at work, and the intervals of rest, should be regulated by the character of the affection: as a principle, it may be stated, that the period allowed for the employment should be short of that in which application produces the disturbance of vision; and the time devoted for resting the eyes should never be less than a quarter of an hour."

ST. MARY'S HOSPITAL.

Varicose Veins; Treatment by Ligature.

(Under the care of Mr. COULSON.)

A GREAT variety of means have been proposed, from time to time, for the radical cure of varicose

veins. They all act, or are intended to act, on the same principle, that of producing obliteration of the enlarged vein; and they are all more or less open to the same objection—namely, that of giving rise to a peculiar inflammation of the vein, which ends in suppuration, pyæmia, and death. The principal methods may be divided into those by ligature, incisions, and caustics. The use of the knife was the oldest method, but it is now rarely employed, and modern surgeons have recourse either to caustics or ligatures. The ligature employed in olden times by Actæus and Paulus Ægineta was revived by the late Sir Everard Home. It is a quick, easy, and efficacious method, but unfortunately it has been sometimes followed by fatal consequences. The occurrence of inflammation in the inner coat of the vein not leading to obliteration, but to suppuration, and subsequent poisoning of the blood, appears to be connected in some measure with the general condition of the patient, and an unfavourable state of his health. Hence, when the subject is strong, young, and in the enjoyment of good health, many surgeons, amongst whom we must reckon Mr. Coulson, do not hesitate to employ the ligature. Caustics, or rather the actual cautery, are noticed by Celsus. Paré employed the potential cautery; and this method has been revived by M. Bonnet, in France, and by Mr. Mayo and Mr. Skey in this country. The French surgeon employed caustic potash, but Sir B. Brodie strongly objects to the use of this substance: "The application of the caustic potash," says Sir B. Brodie, "is very painful; the slough takes a long time to separate; the sore takes a long time to heal; and when one cluster is cured another appears. Altogether, it is a very tedious process, and my own experience does not lead me to recommend it." These objections do not, it would appear, apply to the use of the Vienna caustic, which is made by mixing six parts of lime with five parts of potash, and moistening the powders with alcohol until they form a paste. This method is very extensively employed by Mr. Skey, but it is unnecessary for us to dwell on it, as that gentleman has explained his views fully on this point in a recent number of this journal.

We have seen Mr. Erichsen apply pins under the enlarged veins, and a twisted suture over a piece of gum-elastic bougie on each pin; this has produced adhesion between the sides of the veins, and a subsequent operation of subcutaneous section between the pins, as recommended by Mr. Henry Lee, has resulted in complete obliteration. This is on the principle of the ligature, with the use of the knife, when all danger of inflammation has subsided.

Henry S—, a young man, twenty-three years of age, was admitted into the hospital on the 6th of March, 1856. The patient is by occupation a footman. He has suffered for some time past from a varicose state of the right saphenous vein. The enlarged condition of the veins, which are about the size of a crow-quill, did not produce much inconvenience until the last four months, during

which time he has been in service as a footman; and consequently obliged to remain more on his legs, wearing buckles tied below the knee, and living more freely than he had been previously accustomed to. The change of circumstances at once affected the condition of the veins; they increased considerably in size, and the whole limb became so painful that the man was incapacitated from attending to the duties of his situation.

March 8th.—The varicose condition of the veins now extends up to the lower third of the thigh. They are of the size of a large quill. Ligatures were applied at three different points—two below the knee, near the junction between the middle and upper thirds of the tibia, and one about three inches above the joint. No accident of any kind occurred, and the case proceeded favourably. The ligatures were removed on the 8th and 9th of April, after which the limb was carefully bandaged.

On the 10th all pains had disappeared, and the man was able to walk about without any inconvenience. The veins are greatly reduced in size; in the erect posture, however, some little dilatation of the saphena can be perceived at the lower part of the leg.

On April 16th the patient was discharged cured.

LONDON HOSPITAL.

Asphyxia, from Drowning in the London Docks, in a Lad aged Eighteen Years; Treatment by Venesection with other Measures; Recovery.

(Under the care of Dr. LITTLE.)

On a recent occasion, Dr. Little made some observations upon a case of asphyxia from drowning, which bear upon the general question of the value of venesection in disease. The case was that of a lad, aged about eighteen, who had, early in the morning, three days before, been removed from the water in the London Docks in a drowning state. He was brought to the hospital at eight A.M., breathing heavily, cold, pulseless, and insensible; apparently moribund. A warm bed, frictions, and an emetic powder, contributed partially to restore circulation to the surface and extremities; but at three P.M., during the physician's visit, he was still insensible, although the expression of the features seemed to indicate some consciousness. The general surface was moderately warm, but of a dusky purplish hue. The respiration was noisy, laborious, and frequent; the pulse rapid and weak. Auscultation showed the breath-sounds to be much augmented in intensity, mixed with sonorous and here and there mucous râles. The action of the heart was distinct, but feeble. An opinion prevails that the water in the basins of the London Docks is particularly obnoxious through impregnation with copper, and it was surmised that the patient's protracted insensibility and other symptoms were due to poisoning by copper. Dr. Little, however, attributed the insensibility, dyspnoea, and dark hue of the skin, to the injury the heart, lungs, and brain had undergone through the immersion

under water. He regarded the condition of the patient as one of considerable danger from congestion of the lungs, heart, and brain; and the symptoms had not decreased in intensity during the previous two or three hours; the breathing, indeed, having become more difficult, he ordered venesection, as a means of relieving, in some degree, the gorged vessels leading to and from the lungs, heart, and brain. After about eight ounces had flowed, the lad looked wildly about him, recognised that an operation was being performed, and requested to have his position shifted. The quantity of blood abstracted was from twelve to fourteen ounces. He was ordered an aperient and mustard plasters to the chest.

Consciousness has continued since venesection. Respiration and the colour of the skin, manifestly improved by the bleeding, have since become quite natural. Auscultation discovers nothing abnormal, either in the heart or lungs. An occasional cough is the only remaining symptom.

Dr. Little said he considered this case a good illustration of the manner in which venesection occasionally afforded relief in disease, and that it might, therefore, assist in the determination of the class of cases in which this almost forgotten (if it might not be said neglected) operation was applicable. Here was a person, in whom forcible interruption to breathing was attended by its usual consequences—accumulation of blood in the large veins of the chest, the sinuses of the brain, the right cavities of the heart, and parenchyma of the lungs, at first amounting to a degree sufficient almost to paralyze the heart—witness the pulselessness, the coldness and pallor of the surface. After a time the heart partially recovers, the general circulation is partially restored, a plushy purplish hue succeeds to the pallor, but the minute vessels of the brain are insufficiently relieved, the capillary pulmonic circulation is incomplete, it is doubtful whether the unaided power of the heart will suffice in the struggle, for the patient has sunk lower rather than advanced during the last two hours.

At this period, the abstraction of a few ounces of blood, soliciting onwards, as it were, the systemic circulation, reducing the load accumulating near to and within the heart, enables the cerebral sinuses more freely to discharge themselves, and affords the lungs fairer play. The relief in this case was too distinct and immediate to cause doubt whether the *propter* and the *post* had been confounded. A slightly increased access of oxygen to the air-cells, a few improved and successful beats of the heart, and a renewed development of nerve power in the nervous centres, soon recovered the still partially asphyxiated person to a conscious, comfortably-breathing individual. It is immaterial upon which of these three seats of life—the brain, heart, and lungs—the abstraction of the blood first acts,—perhaps upon all simultaneously. It seems clear, in such a case, that the relief afforded is, in the first instance, mechanical.

Dr. Little here added his conviction, that the value of venesection will be determined, in any

case, by its power of acting mechanically upon the great centres, so as to relieve congestion of them, rather than actual inflammation of mucous and serous surfaces, or the parenchyma of organs, inflammation being a process composed of many and various elements too complicated to be relieved solely by removing one of these elements; the increased accumulation of blood for example.

KING'S COLLEGE HOSPITAL.

Large fibrous Tumour of the Scrotum, involving the Left Testicle, and extending into the Inguinal Canal; Successful Removal.

(Under the care of Mr. FERGUSSON.)

FIBROUS tumours occasionally present themselves in the cellular tissue of the scrotum, either singly or combined. They may attain merely to the size of the testis, or, more rarely, to a bulk of considerable magnitude, as in the case we have the pleasure of recording to-day, the notes of which were furnished to us by Mr. Goodall, the house-surgeon to the hospital.

Mr. Curling speaks of the development of small fibrous tumours in the scrotum, and refers to an example, removed by Mr. Fergusson some years ago. But the case which is subjoined is one of considerable interest, both from its history and its dimensions, and appears to be somewhat analogous to an enormous diseased mass, composed of fibrous tumours of a stony hardness, removed from the scrotum of a man, aged seventy-three years, by Dr. Mott, of New York, also quoted by Mr. Curling in his valuable work on the Testis.

The details of the present case show the removal of a tumour from the scrotum four years ago, which did not at that time involve the testis, but the cord was much elongated, and stretched across the tumour. It was a question then, as Mr. Fergusson said, whether the testis and the cord ought to be removed with the tumour, more especially as to the possible future service of the cord. Both were, however, preserved, the patient made an excellent recovery, and returned to the country, everything appearing as if no operation had ever been performed. There was no specific trouble in preserving the testicle and cord, and there was no loss of time in the operation, although there can be no doubt a surgeon has often lost the life of his patient in his endeavours to preserve the organ, from the time taken to perform the operation, with the extensive hæmorrhage, and other consequences.

Curiously enough, four years after, the same patient is readmitted under Mr. Fergusson's care, the scrotum having attained the size of a pretty large child's head, being more or less lobulated, nothing being felt in the mass of the shape of the testicle itself. So far as the appearances went, Mr. Fergusson did not believe it to be malignant, although he remarked it might be called so from its return; but we know that some of these sero-cystic tumours return, and are not malignant. He, therefore, came to the conclusion, that the patient might have another chance for his life, and he advised

an operation, which was accordingly done with very much less loss of blood than is usually seen in these cases.

In dwelling upon the appearances of the diseased mass on section, he remarked that it was made up of lobes and lobules; and it was the feeling of elasticity it had possessed which made him suspect cysts. He had seldom seen a tumour presenting more uniform characters throughout; and it appeared to him to resemble more the simple sarcoma of Abernethy than a fibrous tumour.

John C—, aged forty nine, admitted on the 26th of April, with a large, lobulated, apparently fluctuating tumour of the scrotum. Is a farm-labourer. Ten years ago, he first noticed a swelling, the size of a nut, in the left side of his scrotum, with an occasional starting pain. This continued to increase in size, and he became an inmate of this hospital, under Mr. Fergusson's care, in June, 1852, and underwent an operation for its removal, the tumour of the scrotum having attained to some size. It was supposed at the time to involve the testicle, and seemed a fair case for operation; there was no malignancy about it. Mr. Fergusson found, in the course of the operation, that the testicle was not implicated; it was situated at the lower part of the tumour, and in accordance with a general good rule here, when the testicle is found to be in a healthy condition, it was left. The whole of the cord and testicle was thus preserved with some little manipulation. The cord was situated over the tumour, and had become elongated, and some remarks were made at the time on the propriety of preserving it.

About eighteen months ago, he noticed for the first time another rather hard swelling in the left of the middle line of the scrotum, which in the course of two months was followed by another, rather lower down. These have been increasing gradually in size since, and now and then he experiences a sharp pain, which runs up the groin, but lasting only a short time. The scrotum is now very much enlarged and tense; on the left side, there are two distinct outlines of cysts; and fluctuation may be felt over the whole of the scrotum, except on the right side, where the testicle is felt. The tumour extends in the direction of the left inguinal canal to about the level of the upper part of the external abdominal ring. The foreskin is pushed forward from the glans penis, which can be felt as it were imbedded in the tumour. The general health is good.

May 13th.—The tumour appears to have increased; fluctuation is more distinctly felt at the base of the tumour than anywhere else; there is another cyst forming and enlarging at the back and lower part of the general mass; the patient does not experience as much pain as he did.

17th.—Chloroform being given, Mr. Fergusson made a longitudinal incision along the tumour from the front of the left external abdominal ring downwards and inwards, and easily dissected off the integuments, the adhesion between the scrotum and tumour being simply of cellular tissue. The dissection was carefully conducted near the

inguinal canal, where the cord was surrounded by the disease extending into it; two ligatures were then tightly tied round the neck of the tumour, when it was removed. The left testicle, imbedded in its substance, was removed with it. Four small vessels were tied, the sides of the wound were stitched together, and its surface covered with wet lint.

The tumour was remarkably high up, passing into the inguinal canal; the upper part of it filled the canal close to the peritoneum; and Mr. Ferguson had to remove a considerable portion of the tendon of the external oblique muscle to isolate it here, and during its removal the internal oblique and transversalis muscles were exposed. When cut into, the tumour was found to be fibrous throughout, no cyst whatever being observable, nor any fluid. It appeared on the outer surface as if it were divided into several cysts, which gave a fluctuating sensation to the fingers when touched, but these turned out to be composed entirely of fibrous tissue.

19th.—The bottom of the wound is beginning to slough, being of a dark colour, and a discharge of pus is taking place. He complains of pain across the abdomen, especially near the lower part, which is also tender on pressure. The scrotum was raised by a thick pad of wool and oiled silk, and covered on all sides by water dressing, while hot fomentations were applied frequently over the abdomen.

22nd.—Pain over the abdomen decreased; the wound discharges a large quantity of pus.

25th.—The slough has entirely come away; patient is looking very well; not so much pain over the abdomen; good discharge of healthy pus.

28th.—No pain referred to the right iliac region; elsewhere it is much diminished; wound looking healthy; simple water dressing continued.

31st.—The wound is granulating fast; still discharges healthy pus.

The subsequent progress was satisfactory; and at the date of the 24th of June, only a very small portion has yet to granulate. The patient is otherwise quite well, and the scrotum is of the ordinary size

white corpuscles in proportion to the red. These corpuscles were not larger than ordinary white corpuscles; and on being tested with diluted acetic acid, presented a single, double, triple, or quadruple nucleus, and some of them in addition also contained a few minute oil globules. Most of the nuclei appeared to be depressed in the centre, and some of them had a crescentic outline.

The patient, a female, aged thirty-seven, always resident in London, had been very delicate; had not menstruated till she was twenty; and, though married for eleven years, had no family. In 1850 she first began to suffer from enlargement of the liver, followed towards the end of 1853 by ascites. Between April and September, 1854, the abdomen had been tapped four times; and, on an average, 400 fluid ounces drawn off at each operation. After the last tapping the ascites did not return, but soon after she began to suffer from ulceration of her mouth and throat, with foetor of the breath, closely resembling that resulting from the use of mercury, but not attributable to this cause. All remedies for this proved ineffectual. The ulceration extended, several of her teeth came out, and portions of the alveolar processes exfoliated. Deglutition became very difficult, and drinks were mostly rejected by the nares; and in March, 1856, she died exhausted. For some months before death she had been remarkably pale, and had suffered from occasional severe attacks of epistaxis and hæmorrhage from the gums.

Dr. MURCHISON also exhibited a specimen of a

GALL-BLADDER CONTAINING FRAGMENTS OF CARBONATE OF LIME.

This had been obtained from the same body as the preceding specimen. The fragments had completely obstructed the neck of the gall-bladder, which contained no bile. They were white, effervesced with acids, and consisted of minute circular crystalline particles, with a cleavage from the circumference to the centre. The liver was in an advanced stage of cirrhosis.

Dr. CRISP exhibited some

FIBRINOUS CASTS FROM THE BRONCHI,

many of which were expectorated. The patient was a female, thirty-three years of age, who had had several attacks of pneumonia. On one occasion death was nearly produced by the presence of one of these concretions at the glottis, the patient removing it with her finger and thumb. At the autopsy, four ounces of serum were found in the pericardium; the right lung was studded with miliary tubercles; the inferior portion of the left lung was hepatized, and many of the bronchial tubes lined with fibrinous deposit.

Dr. CRISP also showed a

LITHIC ACID CALCULUS WHICH HE HAD REMOVED BY DILATATION FROM THE BLADDER OF A LADY.

The patient was about forty years of age, married, but had not borne children. The calculus weighed ten grains less than an ounce, and

Medical Societies.

PATHOLOGICAL SOCIETY OF LONDON.

MR. ARNOTT, PRESIDENT, IN THE CHAIR.

Dr. MURCHISON showed a specimen of

HYPERTROPHIED SPLEEN,

which weighed 2 lbs. 5 oz. There was nothing abnormal in its structure, except an increased firmness of the pulp. The blood of the patient from whose body it had been obtained had been examined by Dr. Burden Sanderson and Dr. Murchison, and had been found to exhibit under the microscope a considerably increased number of

measured five inches and a half in its largest, and three inches and a half in its smallest circumference. The operation occupied about two hours and a half. No incontinence of urine had followed. The plaintiff's father was subject to calculus.

Mr. HENRY THOMPSON exhibited specimens under the microscope of the vegetable fungus found in the skin disease usually termed

"PITYRIASIS VERSICOLOR."

They consisted of the diseased epidermic scales scraped from the affected skin of two patients, in which, on the addition of liquor potassæ, the spores and filaments of the plant became visible under a quarter-inch object glass. This parasitic fungus, which has been classified as the "*Microsporon Furfuræ*," consists of characteristic spores, of a spherical form and long and branching filaments, running amongst the layers of epithelium which form the cuticle.

These two cases had been selected from four, which had recently been treated by Mr. Thompson by the local application of a saturated solution of sulphurous acid gas in water, and in all the eruption had been completely removed in from seven to twenty-one days. No internal remedies had been given.

Mr. Thompson stated that there was a point of interest in relation to the contagious or non-contagious character of the complaint: if it was to be regarded as the former, owing to the vegetable nature of the constituent growth, it certainly could be so only under certain limitations; one of which was, that it seemed to be necessary that some morbid conditions of the secretions or excretions of the patient's skin should pre-exist. Thus, in two of his cases, the patients had been in the most favourable circumstances for communicating it by contact—e. g., in that of a husband and wife, and a mother and suckling child, the last named in each instance not having caught the complaint, although exposure had in the first place lasted for years, and in the second for several months. It must be held that some skin secretions were favourable, while others were unfit for becoming the appropriate nidus for the development of the germs brought into contact with the cutaneous surface. Drawings of the parasite as seen under a quarter-inch object glass were also exhibited.

The Crimea.

MILITARY MEDICAL AND SURGICAL SOCIETY.

THURSDAY, MAY 1, 1856.

DR. WILLIAMS IN THE CHAIR.

THE proceedings of the last meeting having been read, DR. WILLIAMS apologized for the absence of both secretaries, one being on his way to Canada with his regiment, and the other (Mr.

Wyatt) in the interior of the Crimea on duty. In the absence of the latter, Mr. Jessop had undertaken the duties of secretary, and he hoped Dr. M'Leod would not disappoint the Society by withholding his paper, on account of the smallness of the meeting.

Dr. BLENKINS hoped that as Dr. M'Leod had come prepared to read a paper, he would prosecute his determination, as he was convinced he would have an attentive audience, though perhaps to-day a small one; and he (Dr. Blenkins) did not think we were competent to deprive the author of the opportunity of reading his paper, because several members of the Society had not attended, for they must have known that the present subject had been announced for discussion to-day.

Dr. SALL was of the same opinion.

Dr. M'LEOD then read the following paper:—

ON THE GENERAL USE OF CHLOROFORM.

The author began by remarking on the necessity which existed for all surgeons clearly making up their minds on this important subject, and thoroughly studying the question in all its bearings. He proposed to run rapidly over the different points of practical moment presented by a consideration of anæsthesia; and to submit the question as clearly as possible before the Society, with the view of eliciting from its members an expression of their opinions on the subject. Dr. M'Leod referred at the outset to the experiments of Mr. Nunneley and Dr. Simpson, instituted for the purpose of determining the relative value of different anæsthetics, and stated his intention of confining his observations in what followed to chloroform, as being the only anæsthetic of practical value. He then reviewed the different hypotheses which had been started, to explain the physiological action of anæsthetics when inhaled, and gave his adhesion to that view which ascribed it to absorption into the blood, and its being thereby carried to the nervous centres. The fact that both the chloroform and ether can be detected in the flesh and blood for a considerable period after they have been inhaled the author thought went a considerable way to support that view. Dr. M'Leod then dwelt on the modes in which anæsthetics, when inhaled, might cause death. He showed that in those cases which had ended fatally, as well as in experiments conducted on animals to determine the question, the most constant appearances were these—1st, a highly congested state of the pulmonary tissues; 2nd, an engorged state of the right side of the heart, and an empty state of the left: in other cases, a flaccid condition of the whole organ; 3rd, a congested state of the brain. These, with an altered condition of the blood itself, seemed to be fairly attributable or referrible to the drug. Death, then, had been ascribed to—First, asphyxia, caused, according to some, by the arrest of the chemical changes carried on in the lungs; and, according to others, by the capillary vessels of the lungs; second, to coma, caused by the action of the vapour in the nervous centres; and three, to syncope, caused either through the various centres,

or from the local action of the overcharged blood in the heart itself. From a careful consideration of the fatal causes, death, the author thought, was sometimes due to one of these modes, and sometimes to another, and at times to two, or more of them combined. He showed that all arose from the employment of the vapour too little diluted with atmospheric air, and were to be avoided by carefully guarding against such an error in the administration. Dr. McLeod next alluded to the fallacy of allowing theoretical notions, as to what parts of the nervous system are at any particular period of the administration being implicated, or as to how many drops are necessary to produce such and such effects, to interfere in the practical employment of anæsthetics. Such attempts only withdraw the mind from the real points of importance, and lead to erroneous practice. He contended that all apparatus was not only uncalled for, but absolutely injurious, as tending to frighten the patient, and prevent the escape of the expired breath. He said it mattered not whether we measured the amount of the liquid the patient had inhaled or not, so long as we were guided by effects. The propriety of keeping the patient from food for some hours previous to the administration of the anæsthetic, the necessity for quiet during the administration, and of allowing a free circulation of pure air around the patient, were dwelt upon, and great weight was put on the recumbent position being assumed in all cases during the exhibition. The removal of all constrictions of dress about the neck and chest was insisted on, as well as the necessity of observing the temperature of the apartment, as Dr. Snow had shown how great a difference existed in the amount of vapour set free at different elevations of temperature. The advantage of bringing the patient rapidly under the influence of the drug, while a large amount of atmospheric air was at the same time admitted, was pointed out, and the author proceeded to show that the discrepancy of opinion as to the "*upholding effects*" of chloroform arose from the degree of action established; that, if not carried beyond a certain point, the effect was certainly of a supporting character; and that the depression spoken of by observers was the result of a larger amount of vapour being administered than was justifiable. The respiration was shown to be the great guide in the administration of chloroform. The eye, too, being upturned and fixed, afforded no information as to the establishment of the action, but neither the pulse nor the pupil communicated anything. The propriety of observing the colour of the lips and countenance, and also the flow of the blood from the cut vessels, was declared to be of consequence, as affording indications of the approach of syncope. The author stated his conviction that age, sex, diathesis, and idiosyncrasy, were matters of indifference in administering chloroform, if we were guided by effects. Having referred to the combined use of chloroform and ether, the author went on to speak of the proper steps to be taken in the event of an overdose. As the chief danger was seen to arise

from the use of the vapour in a state of too great density, or from its accumulation in the system, the great remedy was shown to be the free admission of pure air, and the employment of artificial respiration, if the patient was too deeply affected to work off the over charge by his own exertions. The wonderful manner in which the respiratory movements may be excited by galvanism was then referred to. The method of raising the epiglottis by the finger, or by drawing forward the tongue, as recommended by M. Regnault, was strongly advocated, and the assistance obtained in producing the desired result by dashing cold water on the face and chest noticed. If the danger arose from syncope, the propriety of applying stimulants to the nostrils, and using them by the rectum, or the direct stimulation of the heart by needles, or the actual cautery, were pointed out. The method of inverting the patient, recommended by M. Nelaton in such cases, was also detailed. No fluids should be given by the mouth for some time, till the patient had become conscious.

The author summed up this part of the subject by recommending in all cases the admission of a stream of fresh air, the drawing forward of the tongue, and the application of cold water to the face and chest. If death appeared to approach by syncope, stimulate the heart in one of the ways mentioned, and depress the upper part of the body. If by coma or asphyxia, use artificial respiration produced by the hands, or electricity. The use of anæsthesia in the practice of medicine was then shortly reviewed, and shown to be chiefly attended with benefit in relieving pain, however arising. Its employment in many diseases, implying lesions of sensation and motion, was dwelt on, together with its use in cases of mental affections. In the paroxysms of many spasmodic and neuralgic affections, it was shown to be invaluable. Surgery, however, was declared to be the real province of anæsthesia, and that in which its benefits were more gratefully recognized. The advantages accruing to both the surgeon and patient were pointed out, and the cases in which it was employed were stated to be reducible to those in which pain or spasm were to be allayed. Dr. McLeod emphatically denied that there was anything in gunshot wounds which made the use of anæsthesia in these less beneficial than in the same accidents of civil life, and he contended that as the pain and suffering in these cases were very great, so much the more necessity existed for its use. He stated his conviction that the mental state of the patients, who were the recipients of these two species of injuries, made no real difference in this question. Shock and pain were both the most fruitful causes of a fatal issue both in primary and secondary operations; and as these two evils were avoided by the employment of anæsthesia, we should naturally expect to find that the mortality succeeding capital operations had decreased since the use of anæsthesia had become general, and this the author would presently show was the fact. In the examination, adjustment, and dressing of injuries, in the employment of instruments to cure disease,

in the reduction of hernia and dislocations, and, in short, in all those instances in which the surgeon's interference caused pain, or in which it was desirable to prevent any muscular opposition on the part of the patient, the use of anæsthesia was shown to be invaluable. Its use in tetanus during the war was spoken of, and the fact stated that in one well-marked case at least its continued use had been followed by recovery. Dr. M'Leod thought that in the General Hospital its use had been, beyond all question, successful, and he did not agree with Mr. Mouat, who had read a paper on the subject at a former meeting, that in the cases there or elsewhere it could be fairly said to have produced any disagreeable consequences. The very few cases in which it had been said to have given rise to unpleasant or fatal effects contrasted strongly with the multitude in which it had been successful, in which it had obviated pain and saved life. The writer next glanced at the various objections which had at various times been made to the use of anæsthesia, and showed how false both theory and practice had proved them to be. He also alluded to the many operations which were now practicable and hopeful, which before the discovery of anæsthesia were unattainable. To military surgeons, the detection of feigned disease was now a matter of simplicity, and many of the questions which divided them in opinion were now much changed in their bearings. All objections to primary amputations were now set aside, and the doctrine of "making the knife follow the ball," had received a new and important support. The writer expressed his strong conviction that shock was not established till some time (the direction being different in different injuries, and persons) after the receipt of an injury, as by a ball, and he said he felt sanguine that an operation under chloroform performed in this interval, would obviate much of the succeeding shock, by removing its cause. He was sorry that during the past siege, which was so manifestly favourable for testing this, so few attempts had been made to carry it out. In conclusion, the author having stated his opinion that no case absolutely forbade the use of chloroform, referred to those in which its administration should be carefully watched. Operations on the back of the mouth, from the danger of blood getting into the throat; cases of severe hæmorrhage, or long suppuration from the activity of the absorption; acute disease of the lungs from the irritation caused; disease of the heart, particularly in active dilatation, with weakening of the organ, on account of the fear of fatal syncope; aneurismal disease of the aorta or marked apoplectic diathesis; and cases in which fatty degeneration may be suspected. These seemed to comprise all those cases in which extra caution was necessary. That care should be taken that the agent employed should be pure was insisted on, and the tests to determine the presence of adulterations were stated. Dr. M'Leod next gave the statistics furnished by Mr. Skey, Drs. Simpson and Snow, and MM. Velpeau and Bonissau, as affording a large amount of evidence in favour of chloroform in sur-

gery, as not only proving its beneficial influence in relieving pain, but in directly saving human life; and he stated that while, during the past war, it had been administered in innumerable instances, only one death had followed its use; and in that case, the patient was not placed in the recumbent posture. While expressing his own belief that, if administered with proper caution, chloroform, might, with perfect safety, be employed in all those cases which fall to the care of the military surgeon, in which it is desirable to overcome pain or spasm, or muscular exertion, the author called on the members of the Society to give a clear and decided verdict on this important subject, founded on the experience of this great war, which would for ever put this question at rest, and remove all doubts as to their appreciation of the immense benefits bestowed on humanity by anæsthetics.

Dr. BLENKINS understood the author to say, that only one fatal case had taken place, whereas he believed more had occurred. He felt very much obliged to Dr. M'Leod for a highly interesting paper, and considered the author had gone most fully into his subject. He (Dr. Blenkins) trusted that each individual would give his experience of the use of chloroform, without any view to opposition, but for the benefit of all. In his practice, chloroform had been just as successful in the Crimea, in severe operations, as at home; and he quite agreed with the author, that there is no difference in the effects of accidents in civil and military life; he had not seen any ill effects in any one of his cases. He did not regard chloroform as a drug to be treated with carelessness and indifference, but with great care; we should watch the pulse and respiration. Objections should not be made to its use in easy operations, even the amputation of a finger. This opinion was founded on the result of many operations without a fatal termination. He remembered one case, that of an old soldier, where the patient was a very long time before he perfectly recovered; but this was owing to the length of time it took to get him under the influence of the drug; and this, again, was accounted for by his addiction to strong drinks. The theory of its action would occupy too much time for him to enter upon now. He expressed his conviction that chloroform acts through the blood, and looked on it as a remedy requiring vigilance in its use. He had operated fifteen times under its influence, besides having given it in tetanus, fits, &c. He believed it to act as a stimulus, and to raise the pulse when low. On one occasion, he was obliged to remove the head of the femur at night, with only one assistant, and he believed it almost impossible to have done so without the aid of chloroform. In conclusion, he begged to state that all his observations agreed with those of the author.

Dr. SALL considered that the Society was much indebted to Dr. M'Leod for the very valuable and lucid paper which he had just read; and as we are not confined to-day to the discussion of chloroform in cases of gun-shot wounds, he begged to state that he had used it with the most marked success

in cases of delirium tremens, and had found it a more beneficial mode of treatment than the stimulo-narcotic plan. He then alluded to the case of a youth in the band of the 93rd Regiment, who, after suffering much distress of mind, from disappointment, relapsed into a state resembling hysteria, accompanied with a complete cataleptic condition, in which he remained for twelve hours. In this case, a variety of stimulating plans of treatment were tried without success, but under the anæsthetic use of chloroform the boy quite recovered. He considered that in the administration of chloroform there were two things necessary to be borne in mind—the purity of the drug, and the correct mode of administering it. He (Dr. Sall) had never witnessed an unfortunate result from its use.

Dr. BOWEN had never heard a more practical paper, and he agreed entirely in the views of the author. He had seen anæsthetic agents used for the last six years, and had given them himself between 2000 and 3000 times. He considered that the best mode of administration was by means of a napkin, as now stated by Dr. McLeod. As regarded the purity of the drug, he was only surprised that more accidents had not happened from its frequent impurity. He had detected both free chlorine and pure muriatic acid in different samples furnished twelve months since to the Military Hospital at Plymouth. It had been given by himself for fourteen hours to one woman: and Professor Simpson, in a case of convulsions in an infant, had given 100 ounces within a period of two weeks, with most beneficial results. He had been informed by the Russians, that throughout the siege chloroform had been used with only one or two fatal results, which was not surprising under the circumstances: it appeared that their mode of administering it was the same as that now recommended.

Mr. HOWARD considered that in delirium tremens it was invaluable; by its means he had procured sleep, when opium could no longer be given with safety, and after every other means had absolutely failed.

Dr. McLEOD replied to one or two observations: and then

Dr. WILLIAMS stated that he had regretted Dr. Mouat's absence. At a former meeting he was precluded from speaking of the use of chloroform in application to gun-shot wounds, but few persons had seen it more extensively used than himself in the colonies. He had derived much pleasure from Dr. McLeod's paper, and had felt much disturbed by Dr. Mouat's previous statements as to the possibility of the effects, such as he described, being produced by chloroform in gun-shot wounds. He would like to inquire whether all the hardships which the men had undergone might not have influenced the result.

Dr. SALL proposed, and Dr. BOWEN seconded, a vote of thanks to Dr. McLeod for his paper, when the meeting adjourned till the following week.

THURSDAY, MAY 8th, 1856.

SIR JOHN HALL M.D., K.C.B., IN THE CHAIR.

THE meeting met for the purpose of enabling members generally to express their further opinions on the use of chloroform, and also to adjourn the meetings of the Society in the Crimea, which was formally proposed as a motion by Dr. WILLIAMS, and seconded by Dr. BLENKINS.

It was also proposed that the following notice should be inserted in the medical periodicals by the secretary:—

"That in adjourning the ordinary weekly meetings in the Crimea, members proceeding with the army to other stations be requested to avail themselves of the provisions of Rule 12 of the Society's Bye-laws.

Reviews and Notices of Books.

Stomach and Intestine. "Cyclopædia of Anatomy and Physiology." By WILLIAM BRINTON, M.D., Physician to the Royal Free Hospital, &c. London: Longman and Co.

On the Organic Diseases and Functional Disorders of the Stomach. By GEORGE BUDD, M.D., F.R.S., Professor of Medicine in King's College, &c. London: John Churchill.

Digestion and its Derangements. The Principles of Rational Medicine applied to Disorders of the Alimentary Canal. By THOMAS K. CHAMBERS, M.D., Physician to St. Mary's Hospital, &c. London: John Churchill.

It has been related of Montesquieu that he more than once observed, "I labour under the malady of making books, and of being ashamed of them when I have finished them." How many of the literary members of our profession suffer in the same manner, we are unable to say; but we fear that if they place a true estimate upon the fruit of their exertions, the number cannot be very small. However, the authors of the works, the titles of which we have placed at the head of this article, may fairly be congratulated upon having much less reason to be dissatisfied with their labours than many of their brother book-makers; and though we fear their writings will scarcely live as long as those of the illustrious author of the "Esprit des Loix," yet we can fairly say, that they have made very valuable contributions to the medical literature of the present day.

Although Drs. Brinton, Budd, and Chambers have all worked very diligently at the same text, yet it would hardly be possible to find three books more dissimilar in every way; in fact, beyond the subject-matter, they have very little in common. Dr. Brinton does not confine himself to merely writing an anatomical and physiological description of those portions of the alimentary canal known as the stomach and intestines. He very wisely insists that it is impossible to treat thoroughly of these parts without at the same time fully considering their functions; and hence he gives a brief account of all that is at present known of the physiology and chemistry of the whole act of digestion. Commencing his article with a rough but valuable sketch of the anatomy of the stomach and intes-

times in the lower divisions of the animal kingdom, he gradually examines the advance of development and increased complexity of these organs, as they may be traced from the lowest infusory to the highest mammal; showing how "a simple excavation first became a membranous canal; how it then acquired an additional orifice; an organ of mastication; a salivary apparatus; a stomachal dilatation; a subdivision of intestine; a liver; a pancreas; and, finally, a compound character of mucous membrane, by virtue of which the whole tube might be compared to one vast expanse or aggregation of glands." (p. 306.) The alimentary canal in man is then described, noticing the structure and functions of the various parts, their relation to digestion and nutrition, the nature of the different varieties of food; and finally, the effects of disease upon the abdominal viscera, and the constitution generally.

Dr. Budd—who has already published the contents of his volume, with the exception of a few pages, in one of the weekly medical journals—avoids all mention of those subjects which are the most ably treated in Dr. Brinton's paper; and, without any prefatory matter, begins at once by devoting two long chapters to the consideration of Post-mortem Digestion of the Stomach—a subject which, from the complete and detailed manner in which it is treated, must, we think, be a favourite hobby-horse of the professor's, and one which he probably takes every opportunity of riding. The various organic diseases of the stomach are then ably described, followed by a few lectures on the Functional Disorders of this Viscus, in which a clear account is given of the important subject of sympathetic vomiting as it arises from irritation or disease of the brain, lungs, liver or uterus: we then have two lectures on Indigestion; and, finally, the work is concluded by several pages devoted to the consideration of the most prominent symptoms of Stomach Affections generally, and the special remedies employed in their treatment.

The volume by Dr. T. K. Chambers is divided into two portions: the first of which is physiological, and the second pathological. In the former, a clear and comprehensive description is given of all that is at present known of the physiology of the alimentary canal, but without any effort at original research; the author's object being—to use his own words—"simply an attempt to join the *disjecta membra* of recent observation on the subject of indigestion into a connected sketch—to offer a concise picture of these vital processes, such as may be present to the mind of a practitioner who is continuously employed in modifying them for the relief of pain and preservation of life, without overloading his scanty leisure by prolonged quotation:" in the latter, the morbid affections of the mouth, palate, and stomach, in so far as they affect digestion, are considered; together with the subject of regimen generally, this being by many degrees the most novel, and in our opinion, the most valuable portion of the work.

Few diseases have hitherto presented a larger field for wild conjecture, and certainly none have

afforded more ample scope to the empiric for rash treatment, than disorders of the digestive canal—of that canal which may, as Dr. Brinton observes, be regarded as the threshold of the House of Life, where dead matter is first endowed with those properties which enable it to become a living constituent of the animal body. The difficulty of diagnosing correctly the various morbid affections of the stomach is by no means slight, since not only are we for the most part ignorant of any direct means of ascertaining its physical conditions during life, but the prominent symptoms of many of its different diseases are almost identically the same. Thus we find *pain and soreness at the epigastrium* not only common to most of the organic affections of the stomach, as to cancer, simple ulcer, and inflammation of the mucous membrane, but also to many of the merely functional derangements of this viscus, being generally present in sympathetic vomiting of phthisis and many diseases of distant organs. We may, however, be assisted in forming our diagnosis by remembering that when the pain depends upon organic disease, it is generally most severe soon after taking food, especially if this be heavy and indigestible; while, when it is due to functional disorder only, it is often relieved by food. This last fact has been explained on the supposition that the uneasiness is mainly due to an unhealthy condition of the gastric secretions, which of course act the less violently the more they are diluted. In ulcer of the stomach, pain is usually constantly present, being merely aggravated by food; in cancer, it is of a dull, aching character, only coming on after meals, and continuing while the stomach is full. A light farinaceous diet will often relieve the pain which follows meals; while that occurring when the stomach is empty may generally be cured by sedatives, alteratives, bismuth, &c. The pain of simple indigestion—the remorse of a guilty stomach, as it has been facetiously called—merely requires abstinence for its alleviation. Another important symptom—*vomiting*—may be produced by a greater number of circumstances than those which give rise to pain, as, for example, by organic disease of the stomach, by mechanical obstruction of any part of the alimentary canal, by irritation in distant organs, or even by morbid states of the blood. When due to organic disease, it generally co-exists with pain, and may be diminished by eating very light food, by taking but little at a time, by counter-irritation to the epigastrium, and often by bismuth. In the vomiting from mechanical obstruction of any part of the alimentary canal, we learn much by noting the time of its occurrence, the nature of the vomited matters, and the extent and urgency of the co-existent symptoms. Thus, in stricture of the pylorus, the vomiting only takes place when the stomach is full and distended, so that the matters brought up are large in quantity. When the constriction is in the small or large intestines, the contents of the bowel are returned into the stomach by an antiperistaltic motion, and then rejected. In the sickness from irritation in a distant organ, or in that caused by an unhealthy state of the blood, there is usually a constant and very

depressing feeling of nausea, but no pain; flatulence is also often complained of, and there is often disordered action of the bowels. This leads us to speak of a third general symptom, which is often very annoying, and not always easily relieved—viz. *flatulence*, or the undue collection of gas in the intestinal canal. It may arise from one or more of the following causes—i. e., from air swallowed, from gas generated by decomposition of the contents of the stomach or bowels, or from gas secreted by the mucous membrane of the intestinal canal. In the first instance, the air is thrown up by eructation, and is nearly odourless and tasteless; in the second, the gases are passed upwards or downwards, are very foetid, and often accompanied by nausea, griping sensations, tenesmus, &c.; while in the third case the gas is generally expelled *per anum*, and has the odour of healthy fæces. Pyrosis or water-brash, voracious appetite, depraved appetite, sick-headache, &c., are all symptoms of different varieties of dyspepsia, dependent upon various causes, to treat of which would require more space than we can afford.

In studying the morbid anatomy of diseases of the stomach, care must be taken not to mistake the alterations which this organ undergoes after death from the action of the gastric juice, with the changes of structure due to disease from natural causes, or to the use of deleterious agents. John Hunter first taught, that the walls of the stomach may be dissolved or digested by the action of the gastric juice after death; and numerous observers have since verified the action of this physiologist's deductions. It was Hunter's opinion, deduced from the observation of cases of accidental death, as well as from experiments on animals, that post-mortem digestion of the stomach was most commonly and most extensively found in persons who had died a violent death, though he remarks, that "there are few dead bodies in which the stomach, at its great end, is not in some degree digested." Spallanzani, on repeating and varying Hunter's experiments confirmed the general accuracy of his statements, while he also showed that a certain degree of heat is requisite to develop this solvent power of the gastric juice; and it now seems to be allowed, that the more nearly we imitate the gastric temperature of warm-blooded animals—96° F. to 100° F.—the more rapidly and extensively will solution occur. At the present time, our knowledge of cadaveric softening of the stomach seems to amount to this: it is most frequently found in hot weather, or when the body has been kept in a warm room; the fundus, or that part to which the liquids in the stomach gravitate from the position of the body, is the most frequently affected; the softening or ulceration is sometimes confined to the mucous membrane, but frequently it extends through the whole of the coats; the excavated patches are of various extent, with thin, soft, irregular, and sometimes fringed edges, thus presenting a marked contrast with the swollen and often abrupt, hardened borders of ulcers; the colour of the blood remaining in the vessels of the stomach is often darkened by the acid of the gas-

tric fluid, giving rise to appearances resembling those produced by chronic inflammation; the softened tissues have an acid reaction, so that they putrefy less readily than other parts, owing to the antiseptic virtues of the gastric juice; and lastly, this phenomenon occurs most frequently in cases of accidental sudden death, where food has been taken a short time previously, although it is very often found where death has arisen from disease of the stomach, from phthisis—especially in women, from inflammatory disease of the brain, from typhoid fever, or from disease of any of the abdominal viscera.

Abernethy used to say, that no person could be persuaded to pay due attention to his digestive organs until death, or the dread of death was staring him in the face. Without either subscribing to, or denying the truth of, this dogma, it is certainly fortunate, that of all the organs of the body, the stomach is that on which we can exert the most powerful action, both indirectly and directly. Daily observation has taught us all how thoroughly digestion is improved by those means which invigorate the system generally, as by rest and early hours, relaxation from severe studies or from the harassing cares and anxieties of business, change of air, sea-bathing, cold or tepid sponging, horse exercise, the disuse of tobacco and of alcoholic stimulants where these have been too freely indulged in, and so on. As regards diet and therapeutical agents, Dr. Budd well observes:—

"I have before observed that we have greater power over the disorders of the stomach than over those of any other organ of equal importance. In the first place, we can for a time lessen its work, and so lessen its vascularity, more than that of most other organs. The action of the lungs must go on without ceasing. The blood that has ministered to nutrition is returned from every part of the body to the lungs, and must there evolve the carbonic acid with which it is charged. Interruption of the process, even for a few minutes, is death. In the liver and in the kidney an active process of secretion is always going on, and we have no power to arrest it, for however short a time. But, if needful, the stomach may be kept entirely without food for twelve or twenty-four hours, or longer still, and its work may be greatly lessened for a considerable time.

"This power to give the stomach entire rest for many hours, and to lessen its work, and so lessen its vascularity, for a considerable time, is of great avail in subduing or mitigating the inflammatory diseases to which it is subject.

"Again, we can act by medicines more directly and more variously on the stomach than on any other organ. Our medicines are applied directly to it, and have, many of them, a direct local action upon its coats. Ipecacuanha, rhubarb, and ginger increase its secretion; and bismuth, lime, and the vegetable astringents, restrain undue secretion by their direct action on the secreting membrane. Opium, prussic acid, and carbonic acid, allay pain and check vomiting, not only by their influence on the system at large, but also by their direct action on the nerves of the stomach itself. Ice-water, which is another powerful agent in controlling vomiting, when this depends upon an inflammatory condition of the coats of the stomach, acts directly by lowering the temperature of the stomach itself. Acids and alkalies, which are very efficient remedies in some kinds of gastric disorder, in addition to their more remote effects, have a direct action on the lining membrane of the stomach and on the fluids secreted by it. Carminatives, again, probably owe their efficacy chiefly to the immediate action they exert on the coats of the stomach."—p. 325.

Within the last few years numerous works have been published on the employment of alcoholic drinks, and apparently strong arguments have been unphilosophically drawn against their use from their abuse. That intemperance is a curse, leading to shattered health, poverty, misery, and crime, none have ever doubted; but may not a poor man enjoy, and receive health and strength from, his beer and pipe, as his more wealthy neighbor complacently sips his Rhine wines, without being beguiled into frantic intoxication? We are not, indeed, afraid that the Maine Liquor Law, or any such legislative interference, which only tends to make drinking cheap and private, will ever be tolerated in this country; but we will even go further, and confess that, in our opinion, remembering man's passions and propensities, and seeing how largely wine and beer minister to his health and comfort, the good derived from them outweighs the ill. Dr. Chambers very carefully considers this last question, and answers it in the affirmative. He particularly refers to the experiments which Dr. Böcker made upon his own person as to the effects of beer and wine. With regard to the latter, Dr. Böcker took daily, without otherwise altering his diet, from one and a half to two and a half bottles Niersteiner, a good second-class white Rhenish wine, or of Walporthzheimer, a red wine made from the Burgundy grape.

"The results were," says Dr. Chambers, "in both cases, a scarcely perceptible alteration in the bulk of the cutaneous, urinary, and fecal excretions indeed, but a diminution, devoid of doubt, in the quantity of carbonic acid expired, and that this latter phenomenon was more marked in the red Walporthzheimer than in the white Niersteiner. That which, however seemed peculiar to vinous liquors, and which probably is the physical effect of most practical import, was a striking diminution in the quantity of earthy phosphates in the urine. When we consider the important tissues from whence these phosphates principally come—no less than the bones and the brain—and what an overpowering influence their renewal or destruction must have, too great value cannot be attached to an agent which possesses the property of modifying them. It must indeed be a two-edged sword in the hands of the employer capable of doing infinite good and harm."—p. 235.

With regard to the specific medicinal virtues of stimulating drinks, we need say but little. It is, no doubt, true, that the stomach which requires them to enable it to act efficiently can hardly be said to be in a healthy state; but at the same time we must remember, that the battle of life is not waged without much wear and tear, without almost overwhelming anxiety and sickening disappointments, and that the digestive organs are the first to sympathize with the depressions of the mind, no less than with the fatigues of the body.

In concluding these necessarily cursory observations, it only remains for us strongly to recommend such of our readers as hate empiricism, and are dissatisfied with merely traditional precept, to peruse for themselves the writings we have been noticing; advising that such should be done in the order in which we have arranged them. Dr. Brinton's paper is exceedingly creditable to him, since it not only shows a thorough knowledge of all that other observers have done to forward out

knowledge of the anatomy and physiology, as well as of the diseases of the stomach and intestines, but also indicates a large amount of original experiment, together with the results of a long series of important and practical observations. The volumes of Drs. Budd and Chambers are also no less valuable; for although they present a smaller amount of original matter, yet they may, perhaps, be found more adapted to the exigencies of the busy practitioner, or, at least, to those who are content to be guided by the conclusions to be drawn from the scientific doctrines of the day, without entering minutely into their details, or very closely studying the general laws of organized beings. The somewhat musty proverb on the shortness of life and the duration of art, is only too true; but still we may proudly remember, that "studies serve for delight, for ornament, and for ability," and that "reading maketh a full man."

Lectures on the Comparative Anatomy and Physiology of the Invertebrate Animals, delivered at the Royal College of Surgeons. By RICHARD OWEN, F.R.S., Hunterian Professor to the College. Second Edition. Illustrated by numerous Woodcuts. London: Longman, Brown, Green, and Longmans. 1855.

MR. OWEN'S latest work on the Anatomy and Physiology of the Invertebrate Kingdom requires no praise from us. These Lectures are annually delivered in grateful remembrance of one whose name will never pass away whilst men read and think. Inferior in genius to none, Mr. Hunter did not consider the anatomy of the lower animals, as they are often called, beneath his notice; on the contrary, he bestowed on them a labour and research, which, in bustling, busy, utilitarian London, all but compromised his position. Since the great discoveries of the immortal Cuvier gave a tone and fashion to zoological inquiries, the anatomy and physiology of the invertebrate or avertebrate kingdom has assumed its true place in science, and a philosophic inquirer, enjoying leisure and fortune, may now devote himself to such pursuits, without incurring the penalties of contempt or pity from the practical world of Britain. In this field Mr. Owen has laboured long—successfully we hope and believe. His lectures, however, are still delivered at, or in the College of Surgeons, by no means the most suitable hall for expounding the structures remotely connected with man; practically such researches and such inquiries belong, in fact, to science and to general education, and not in an especial manner to surgeons or physicians. This great educational error still prevails in Britain, and the hall, and place, and audience selected, tend to perpetuate the blunder. Let us be thankful, however, that science, driven away from Bloomsbury, still finds a resting-place in Lincoln's-inn-fields, however inappropriate the locality may be. Let us also rejoice that, in the distribution of public favours, Mr. Owen, a most laborious and painstaking inquirer into anatomical truths, has not been overlooked.

Of Mr. Owen's work little need be said; to

praise or dispraise it were equally supererogatory. It is not a popular, but a scientific work; the superfluity of technical terms with which it abounds will injure it with many, but not with the resolute student. To all such we strongly recommend it. In its plan, Mr. Owen's book resembles the classical manual of M. Milne Edwards, a work which has done such service to the cause of sound zoological education in France. The arrangement, it is true, is reversed, but this difference is unimportant.

On the difficult and delicate question of the transcendental in anatomy, and especially on the subject of unity of the organization, it is satisfactory to find the author's views becoming more and more in accordance with those of Goëthe, Oken, and Geoffroy (St. Hilaire), and, we may add, of Hunter himself; for that truly illustrious man early saw the transcendental of anatomy in its true light. The author remarks (p. 645), that "the more perfect animal is at no stage of its development different from some of the inferior species." The meaning of the above, although not clear, and, in one sense, contrary to the fact, nevertheless, taken in conjunction with many others, implies that the author adheres now to the doctrines of Goëthe. Hunter, in his own quaint way, gave to the world a more philosophic formula than any as yet substituted for it. "If we were capable of following the progress of increase of the number of the parts of the most perfect animal, as they first formed in succession, from the very first to its state of full perfection, we should probably be able to compare it with some one of the incomplete animals themselves, of every order of animals in the creation, being at no stage different from some of those inferior orders; or, in other words, if we were to take a series of animals from the more imperfect to the perfect, we should probably find an imperfect animal corresponding with some stage of the most perfect." Such were Hunter's views of the transcendental long before the names of Oken, or Spix, or Geoffroy were known to the world; justice has not yet been done to this wonderful man.

The importance of embryological research in the elucidation of many difficult questions in anatomy and physiology has been well insisted on in the volume now before us; by it many difficulties in the history of the fossil world have been overcome; by this powerful instrument of research, objected to by the illustrious Cuvier on grounds admitting now of the clearest refutation, the affinities of many existing animals can now be explained and proved; generic likenesses need no longer be confounded with specific, and the fossil world detected in the embryo forms of that which now exists.*

* See Dr. Knox's *Memoirs on the Philosophy of Zoology*, published in *THE LANCET*.

A Catechism of Chemical Philosophy: being a familiar Exposition of the Principles of Chemistry and Physics in their Application to the Arts and Comforts of Life. Designed for the Use of Schools and Private Tuition. Illustrated by 160 wood engravings. By JOHN HORSLEY. London: John Churchill. pp. 247.

WE know of no work of its class on Chemistry which enjoyed, and deservedly so, a greater reputation than Parke's "Chemical Catechism" did in its day, for both the plan of the work and its execution merited the highest praise. It is to be regretted that a similar encomium cannot be passed on Mr. Horsley's "Catechism of Chemical Philosophy"—a work evidently written to supply the void once occupied by the excellent model of Mr. Parke, but certainly failing to do so, from the inaccuracy and incompleteness of its details. For example, Mr. Parke would never have told his readers, had he lived in these days of scientific development, that wood, when exposed to an intense red heat in an iron vessel is converted into *pure* carbon (p. 4); neither would he, when illustrating chemical decomposition, have explained, as Mr. Horsley has done, (p. 5) that the oil employed in the manufacture of soap is again separated on the addition of an acid.

Mr. Horsley may plead, in answer to these criticisms, that he has sacrificed accuracy to simplicity, his work being intended for young persons for whom more correct explanations would have been too complex. If such be the author's plea, what justification can he advance for rendering that, which when correctly stated is simple, erroneous and complicated when described by him? As an example of this method of treating his subject, we may cite Mr. Horsley's method of making sulphuretted hydrogen (p. 114). He puts into a bottle sulphuret of iron, zinc, sulphuric acid, and water, when, he tells us, the sulphur will be evolved with the hydrogen, forming sulphuretted hydrogen. Our chemical readers will probably inquire what could have induced the author to prescribe *zinc* as one of the ingredients for making sulphuretted hydrogen, when any laboratory pupil of a week's standing knows that sulphuret of iron, sulphuric acid, and water, are all sufficient for that purpose. We think we can anticipate Mr. Horsley's answer. Not being a theoretical chemist, he did not perceive where the necessary hydrogen was to come from without the presence of the zinc; therefore he added it to the process. Even this explanation will not help him, for he ought to have practically known that when sulphuret of iron is treated with sulphuric acid water is decomposed, and that the hydrogen necessary for combination with the sulphur is thereby eliminated.

We could multiply these instances, as evidenced by the Catechism; but the utility of such an undertaking is questionable, for to correct the author's mistakes would almost be equivalent to re-writing the book.

With regard to the author's style, we can offer no congratulations, for his language is so obscure as to be frequently perfectly unintelligible. Mr. Horsley says, in his preface, that many works on chemistry are so abstruse as to require a *key* or

accompagnement, and we cannot avoid thinking that his Catechism requires a *key*, or some similar instrument, to render such passages as the following comprehensible. It is an answer to the question—How is mercury affected in the thermometer!

"By the free caloric imparted to it by the air or medium to which it is exposed, by which it is rendered *sensible*, owing to the expansibility of the mercury, and its being at the same time *in vacuo*."

We feel no desire to discourage Mr. Horsley, for we have reason to believe that he possesses some qualifications for writing a *popular* work; but in future he must better prepare himself for the task, if he desires to win the approbation of the learned public, who will not tolerate that the integrity of science be needlessly sacrificed at the shrine of—knowledge made easy for the million.

Practical Hints for Investing Money in the Funds, and other Securities. By FRANCIS PLATFORD, Sworn Broker. London: Smith, Elder & Co., Cornhill.

ALTHOUGH it is not our ordinary custom to give notices of new works unconnected with medical literature, yet we can have but little doubt that the book before us will prove acceptable to those of our more prosperous professional brethren, who, with savings to invest, require some experienced guide to instruct them *where* and *how* to make investments to the best advantage, and with the least possible risk.

The author properly begins *ab initio*, as one writing for an *uninitiated* public; and we think that nothing can well be more intelligible than his statement of the relation between the Fundholding public and the Government that borrows and gives them interest on the security for their capital of the national credit. His description, too, of the Stock Exchange and its denizens, or members of the three classes—speculators, jobbers, and brokers—as well as the judicious hints which he gives to the public respecting the legitimate position and functions of the last, are well worthy of perusal; besides which there are some very good directions for those wishing to invest in railway and other joint-stock shares, which nowadays are favourite securities with many that aim at higher interest than can be obtained from the Government funds. We would also recommend especial attention to the author's remarks as to the employment of bankers as confidential agents, with *unlimited* powers in fund transactions—a subject that derives great temporary importance from certain banking delinquencies lately brought to light, and for which the offenders are suffering a well-deserved punishment.

It falls not within our province to say more on this interesting work, but we heartily recommend it to the notice of our readers, and would specially call their attention to the Appendix, which, besides other matters, contains a table of the fluctuations of Consols during nearly the last hundred years, with critical and historical comments as to the

causes of such changes in our leading Government securities.

Histoire de la Découverte de la Circulation du Sang; par P. FLOURENS, Membre de l'Académie Française, Secrétaire Perpétuel de l'Académie des Sciences, Institut de France. &c. &c.

WE regard this little volume as a perfect gem of medical literature, of classic French, of the spirited in style, and the candid in opinion and judgment. We know of no volume so highly to be recommended to the medical student who wishes to rise a little above the horde of students, whether we consider the talent of the author or the interest of the subject.

The history of physiological discovery, so written, would be the treasure of our libraries, the honour of our profession.

Let us imagine the anatomist first denuding the viscera of the neck, the thorax, and the abdomen. His attention would be first arrested by the light and airy texture of the lungs, then by the heart, then by the heavy and solid substance of the liver. To the first, it would be found that the *air-tubes* lead; from the second, that empty tubes, easily mistaken for air-tubes, proceed. No wonder that both received the same name, and were imagined to be connected in performing the same function, the former being designated the *arteria trachea* or *aspera*, the latter *arteria*,—the office of both being concluded to be the transmission of air. Of all this air-system, the heart was the centre.

The liver was the centre of the venous or blood-system. From this organ, the blood was sent *along the veins* to the utmost parts of the animal frame. The septum between the ventricles of the heart were perforated, and the blood passed directly from one ventricle into the other. This was the view of Galen and his followers, Vesalius being the first to deny it, in which, however, he is not consistent with himself.

Servetus was the first, in 1553, to state that the blood passes from the right ventricle, *through the lungs*, to the left. This was the discovery of the pulmonary half of the circulation, and of its capillary character there.

Cæsalpinus was the first to notice the tumefaction of the veins, in preparing the arm for blood-letting, *below*, and not above, the bandage.

Fabricius ab Aquapendente discovered the *valves* of the veins, in 1574, *forty-five* years before they suggested to Harvey the circulation of the blood.

Such were the shadows which the coming event of the discovery of the Circulation of the Blood cast before it. But they were *not* that discovery. That discovery was reserved for our own immortal Harvey, the honour of our profession. It was discovered in 1619, and published in 1628.

Such is the character of most great discoveries. Fact after fact is observed, until one genius arises to combine them. Cæsalpinus even used the very term *circulation*, meaning the pulmonary circulation.

M. Flourens' account of Harvey and of his work (p. 30) is a model of candour and eloquence. It begins: "Le livre de Harvey est un chef-d'œuvre. Ce petit livre de cent pages est le plus beau livre de physiologie." He adds (p. 35): "Enfin, Harvey vient à ses expériences. Il en a fait peu, mais elles sont décisives. C'est là le génie." And (p. 37): "De la découverte de la circulation du sang date la physiologie moderne." "Harvey venait de découvrir le plus beau phénomène de l'économie animale."

Then follows an allusion to the opposition to the new doctrines by Riolan, Guy-Patin, and a crowd of others. A great discovery always leads to a swarm of little opponents.

The circulation in the *fœtus* next occupies our author. Here, again, whilst Galen saw the peculiar structure, it was Harvey who saw its use. Of modern anatomists, Fallopius first noticed the *ductus arterialis*, and Vesalius the *foramen ovale*. In 1699 a discussion took place in the Académie between Méry and Duverney, in which the former opposed Harvey's view in regard to the use of the *foramen ovale*, and was in error; whilst Duverney agreed with Harvey, and proved correct.

Such was the justness of view of Harvey.

To these interesting facts we have to add, that the *lacteals* were discovered in 1622 by Aselli; the *receptaculum chyli* in 1648 by Pecquet; and the *lymphatics* between 1650 and 1652 by Rudbeck and Bartholin.

All this history is written by M. Flourens in a style which, with still more spirit, reminds us of Cuvier. The volume concludes with an account of the time and character of Guy-Patin, of the Faculté de Médecine de Paris:—

"Guy-Patin est, par excellence, l'homme de cette époque: il combat les Arabes; il combat les modernes; il est fanatique d'Hippocrate et de Galien; il ne veut ni de la circulation du sang ni de la chimie, qui ne sont en effet ni dans Galien ni dans Hippocrate; enfin à ses préventions médicales il en joint d'autres; il hait l'*antimoine* parce qu'il nous vient des chimistes, et le *quinquina* parce qu'il nous vient des Jésuites."

Such, in conclusion, is a brief specimen of M. Flourens' spirited style, classical, eloquent, pointed, instructive. Never was Harvey so defended. Never was physiology so written. Never were medical truths so portrayed.

The account of Servetus is full of pathos.

The Education of the Imbecile, and the Improvement of Invalid Youth. Published for behoof of the Home and School for Invalid and Imbecile Children. PP. 20. Edinburgh, 1858.

A concise and clear statement of the endeavours which have been made in various European states to raise up the mind of the cretin and idiot from the melancholy condition it is sunk in, and thus to prove from their success—

"1. That very many, perhaps a majority of children, born with such defects of the nervous system as here in idiocy or imbecility, are susceptible of great improve-

ment, both in mind and body, under appropriate treatment and training.

"2. That all fatuous children ought to be subjected to the proper means of education in institutions devoted to the purpose.

"3. That such institutions ought to be superintended or conducted by properly-qualified medical men, who should have the assistance of persons qualified for the task, by patience of temper, and by experience of cases more or less similar."—p. 20.

To these deductions we give our cordial assent, and to the endeavours now being made in Scotland our most earnest wishes for their welfare.

Nouvelle Fonction du Foe, 1855; et Leçons de Physiologie Expérimentale, 1855. Par M. CLAUDE BERNARD, Membre de l'Institut de France, &c. &c.

PHYSIOLOGY and medicine are indebted to M. Claude Bernard for one of the most important discoveries of the present century—that of the *glycogenic function of the liver*.

If, in a carnivorous animal, the blood of the *vena portæ*, or veins passing from the stomach and intestines into the liver, be carefully examined, not a trace of sugar is to be detected. If the blood of the hepatic vein of the same animal, or the veins proceeding from the liver, be tested in its turn, sugar is found to exist in it in considerable quantity. During the circulation of this blood through the liver, then, *sugar is formed!* A new phenomenon, a new function, a new object of physiological and medical study has been discovered. This discovery has placed the name of Bernard in the first rank of discoverers in physiological science.

We proceed to lay before our readers the special points involved in this discovery in detail. We shall, then, briefly notice several objections which have been made to it, for this discovery has undergone the usual lot of discoveries in physiology especially, and M. Bernard has had to wage war with many disputants. But we believe that the *glycogenic function of the liver* still remains as a part of physiology and, in its excess, as in diabetes, which it explains for the first time, of pathology.

Extraordinary as the fact may be, this last discovery in *material* physiology coalesces with the latest discovery in the physiology of the nervous system, for the *glycogenic function of the liver* appears, from M. Bernard's investigations, to be an example of internal diastaltic function, in which the *pneumogastric* is the ascending or incident nerve, and the *ganglionic* the descending nerve, the *medulla oblongata* being the centre.

The following are the principal facts in regard to the *glycogenic function*:—

Sugar exists in the liver of man and of all animals in health.

This sugar exists in the liver of carnivorous as well as herbivorous animals, during the state of digestion, or of fasting. It is therefore independent of the food.

In the carnivorous animal, there is no sugar in the *vena portæ*; whereas there is a considerable

quantity in the hepatic veins. The sugar is therefore formed *within* the liver.

The sugar disseminated in the blood disappears as it passes to a distance from the liver, without appearing in the urine.

The blood which leaves the liver, whilst it contains sugar, is found to have lost all its fibrine, and much of its albumen. The sugar seems, therefore, to have been formed in the liver at the expense of the albuminoid principles of the blood.

The glycogenic function undergoes changes from various causes. It is most active during digestion; less so during the intervals; absent in the case of long fasting.

External influences also modify this function:

It is diminished by cold; restored by warmth.

It is modified by the condition of the nervous system—augmented, diminished, or perverted.

It is affected sympathetically by other functions, and especially by the condition of the respiration.

It may be pathologically augmented, diminished, abolished. Its morbid augmentation produces *diabetes*. It is abolished by febrile and other diseases.

We revert to the reflex or diastaltic action of the pneumogastric nerve in the glycogenic function: if, says M. Bernard, we divide the pneumogastric nerve, and galvanize its peripheric portion, no effect is produced; but if we galvanize that part which is in connexion with the spinal marrow, the glycogenic function is not only not interrupted, but may be greatly augmented.

In the physiological condition, an excitation induced by the air in the lung, and transmitted to the nervous centre by the pneumogastric nerve, induces the formation of sugar in the liver by means of a reflex action.

Our readers will, we think, be led, by this brief enumeration, to study for themselves the subject of the glycogenic function of the liver. They will find an account of it in the second of the works cited at the head of this article, a work full of fact and of detail of surpassing interest. Our object has been to give such a plain statement in regard to M. Bernard's labours as to call attention to them, and lead to their due appreciation both by the scientific and the practical physician. The pathology of diabetes is lucidly explained for the first time, a debt the profession and the public owe to M. Bernard.

In a subsequent article, we propose to enter into this important subject more in detail, and especially in reference to the many disputes to which we have adverted, and to which this splendid physiological discovery has, as usual, given origin.

M. Bernard has early received the greatest reward of science in Europe, in his nomination as a member of the Institute of France, whilst yet young and in the commencement of his scientific career; a proof of the value attached to discovery.

Cell Therapeutics. By WILLIAM ADDISON, M.D.F.R.S. London: John Churchill. 1856. pp. 84.

AN attempt, according to the author, to consider the phenomena of cure and reparation in connexion with the cell physiology, not simply the consideration of cure in mechanical injuries, but methods of reparation in blood distempers and organic disease. The manner in which cell-growth may be viewed as a therapeutic action, according to Dr. Addison, will be seen from the following quotations:—

"New cell-growth in the vascular tissue is, we contend, the natural provision which severs and opens blood-vessels without hæmorrhage; granulation, the natural provision for the repair of solutions of continuity; and pus, for throwing off of sloughs and poisons. If granulations are wanted, and they appear, they belong to the category of therapeutics. . . . if pus be required to loosen and discharge a slough, and pus appears and performs the task, it belongs to the category of therapeutics."—p. 71.

"In medical treatment there are many medicines employed which are poisons, and it is a result of microscopical investigation that, in order to be beneficial, they must partake of this character, inasmuch as they are employed to stop cell-growth. . . . The growth we wish to stop has the embryoniform type; it is the youngest or last-formed, the tenderest or most succulent, and therefore the first to fade upon the presence of unsuitable conditions—of alterative agents given for the express purpose of its removal. . . . we want immediately to stop a granulation cell growth, and some agent is resorted to to produce just so much qualitative change in the blood as shall stop it. The Art seems to consist in the selection of the proper agent, and the apportionment of it in such quantities that a minor distemper of the blood, sufficient to extinguish the morbid growth, without materially interfering with healthy functions, shall be produced."—p. 74.

Madeira and seine Bedeutung als Heilungsort. &c. Von KARL MITTERMAIER, Heidelberg. pp. 158. Mohr, 1855.

Madeira considered as a Resort for Invalids. By CHARLES MITTERMAIER, M.D., of Heidelberg. A description written for medical men after several years' residence.

THE profession in Germany owe a debt of gratitude to Dr. Mittermaier for having laid before them, in a very agreeably written little book, the information he has collected whilst staying at Madeira with a phthisical patient. The description of the magnificent vegetation and aspect of the island, together with the attractive account of the beauty of the climate, are such as to create in the reader the wish of repairing thither, independently of any pathological consideration. But the book abounds likewise in details of a more homely kind, which are of great value both to the physician and patient. Amongst these, we consider the meteorological observations, and the survey of the various diseases (especially pulmonary consumption) which may be benefited by a stay at Madeira, worthy of great attention. Dr. Mittermaier refers to several well-known works which have been written on the same subject in our language, and has enriched

his book with a number of cases seen by himself in the hospital "La Misericordia."

On Calculous Disease and its Consequences. Being the Croonian Lectures for the year 1856. Delivered before the Royal College of Physicians by G. Owen Rees, M.D., F.R.S., Fellow of the College, &c. &c. pp. 81. London: Longman and Co. 1856.

On the Pathology and Treatment of Alkaline Conditions of the Urine. By G. OWEN REES, M.D., F.R.S. Guy's Hospital Reports, Third Series, Vol. I. London, 1856.

THE above works of Dr. Rees will well repay perusal, the doctrines therein inculcated being likely, if true, to alter very materially in some points the treatment of urinary disorders. In the Croonian Lectures the author seeks to prove the imperfectness of the chemical evidence of the existence of compounds of oxalic acid in the blood, and of the peculiar pathological conditions which have been said to connect themselves with the oxalic acid diathesis. The latter, according to Dr. Rees, is an accidental and unimportant modification, of the most significant variation from health, which consists in the excretion of uric acid or of its compounds in abnormally increased proportions. The so-called oxalic acid diathesis is placed by the author "amongst those indications which should serve to put us on the watch for symptoms connected with the gouty state."—p. 22.

Dr. Rees has on several occasions sought to prove that a deposit of the earthy phosphates is rather the result of disease of the urinary mucous surfaces than of any other condition. This doctrine is again inculcated both in the Croonian Lectures and the very practical paper in the Guy's Hospital Reports. In the former it is stated—

"From what I have now adduced, I would submit that if we except cases in which calculi are formed of the four following rare substances,—viz, cystine, carbonate of lime, silicic acid, and uric oxide, we may consider all calculous disease as originating in the gouty or uric-acid diathesis."—p. 38.

Not the least important of the author's teachings are the following:

"The great error has been in supposing that urine passed alkaline from the bladder has necessarily been secreted alkaline from the kidneys, whereas in many cases there is great reason to believe that it is owing to its too great acidity as secreted that the membrane becomes inflamed, and alkaline urine (as discharged by the urethra) is the result.

"In such cases, alkaline treatment is of the greatest service. By it the urine is rendered alkaline as it is secreted by the kidney, and less irritating to the inflamed mucous surfaces; and as the patient advances to convalescence, and the alkaline remedies are gradually disused, the urine appears of its healthy and acid character as discharged from the urethra."—*Guy's Hospital Reports*, p. 304.

Lectures on Clinical Medicine. By JOHN HUGHES BENNETT, M.D., F.R.S.E. Professor of the Institutes of Medicine and of Clinical Medicine in the University of Edinburgh, &c. Nos. IX. and X. Edinburgh: Sutherland and Knox.

WE have here the concluding portions of the able Clinical Lectures of Dr. Hughes Bennett. The first five numbers have for some time been out of print. We are promised however, at no distant period a fresh and complete edition, yet more acceptable to the professional public than the present one. We trust this period may soon arrive. The Lectures are admirably characterised by just that due admixture of scientific pathology and bedside practice which is so difficult to attain in clinical prelections. We often differ from Dr. Bennett; on some questions—the treatment of pneumonia, e. g.—most completely, but we cannot help recommending his views on the whole to the careful observation of the profession. The present and concluding part of the author's Lectures includes the subjects of Rheumatism and Gout, Functional Diseases of the Stomach, Organic Disease of the Stomach, Gangrene of the Lungs with Dysentery, On the Diagnostic Value of the Absence of the Chlorides from the Urine in Pneumonia, Nephritis and Pyelitis, Albuminuria and Peritonitis. The work concludes with a Lecture on the Ethics of Medicine, delivered by the author in 1849, as Promoter of the Medical Faculty to the Graduates in Medicine.

Physicians and Physic. Three Addresses: 1. *On the Duties of Young Physicians.* 2. *On the Prospects of Young Physicians.* 3. *On the Modern Advancement of Physic.* By JAMES Y. SIMPSON, M.D., F.R.S.E. 8vo, pp. 133. Edinburgh: Adam and Charles Black.

FULL of interesting and important matter. The following extract from Lecture I. will convey an idea of the sentiments of the writer:—

"When the medical man first settles down in practice, he, by the mere act of this settlement, enters into a kind of moral contract with those who are to become his patients. They, on their part, agree to entrust entirely to his professional care and keeping, property which, to them, is greater than the riches of Croesus—their health, namely, and their lives. He, on his part, pledges to protect and preserve for them these inestimable gifts, by all the best-directed means that medical science has devised. Though it may be argued that

'It is not writ so in the bond,'

yet the obligation is not the less real. The contract though silent, is not the less solemn. It is a grave and inviolable bond of duty and conscience on the part of the practitioner—one of faith and confidence on the part of the patient. See to it, therefore, that you are always prepared to fulfil perfectly and promptly your portion of the conditions of this important and rigorous mutual contract. Whatever is, under its seal, communicated to you as a matter of professional confidence, must ever remain buried within your own breasts in all the silence and secrecy of the grave. Whenever called upon for your aid, you are bound by duty, law, and honour, to obey the summons. If busied and immersed in any engagement, then must that engagement be instantly broken, unless it be purely a professional one. The time of the medical practitioner is at every moment at the command of every man except himself; it is not strictly his—it belongs to his suffering fellow-creatures. He is altogether, in effect, more their property than his own. And be ever waiting and watching, in full and complete readiness, for the heavy obligation of practical knowledge which your duty to your patients imposes on

you. Keep your minds and thoughts always attuned to the exercise of your profession, and amply stored with every information that can be required. '*Erecti, citati, armati, jam esse debemus.*' In all cases your responsibility is great; in cases of doubt and danger, it often becomes fearfully so. The fellow-being whom you have persuaded to confide in you may then have his life saved by your professional knowledge, or sacrificed by your professional ignorance. Difficulties and sudden emergencies will constantly spring up around you. It is at these moments that you will find summoned at once, into full play and force, all the depth and soundness of your professional abilities and acquirements. Under such circumstances it is only the conviction of a perfect knowledge of the nature and treatment of the case before you—as derived from a perfect previous study of and acquaintance with it, in all its varied details—that can impart to your minds all that calmness of self-possession, and all that promptitude of decision and of action, that the exigency may demand. It is such conviction alone that can properly direct and determine the measures of the physician, on those occasions when the trembling balance of life and death is dependent on the very next step that he ventures to take. It is such conviction alone that guides and steadies the hand of the surgeon in those trying moments when danger and death hover around every touch of his knife."—*Pp. 30-33.*

Manual of Chemical Physiology. From the German of Professor C. G. LEHMANN, M.D. Translated, with Notes and Additions, by J. CHESTON MORRIS, M.D. With an Introductory Essay on Vital Force, by SAMUEL JACKSON, M.D., &c. 8vo, pp. 331. Philadelphia: Blanchard and Lea.

THIS is a translation of Professor Lehmann's smaller work, or "Handbook of Physiological Chemistry,"—a title unnecessarily altered by the American editor into "Manual of Chemical Physiology." In its present form, it appears to be fully translated, and is likely to be useful to the student. The views of the German physiologist have been so often brought before the profession that it is needless here to give any analysis of them. They are justly regarded as of high authority; and we must say that we regard the thrusting into this work an introductory essay on "Vital Force," by an American teacher, whose opinions on the subject are expressly stated to be opposed to those of the German professor, to be quite uncalled for, and worthy of positive reprobation. The argument is at the best but a question of words for we know nothing at all upon the subject. This renders the proceeding still more vexatious. Dr. Morris has further added an Appendix, on the "Physiology of the Circulation, Reproduction, &c." This is objectionable, as altering the character of the original work, which does not treat of *physiology* but of *physiological chemistry*. The details thus added are few and meagre, and detract from the character of a treatise which, before this addition, was complete in itself. We must recommend our American cousins to give up their disagreeable habit of editing, clipping, and altering the works they have borrowed—processes which often too effectually transform a good book into a bad one. We are sure that many European savans who have been thus treated will sympathize in

this complaint, and all will agree that such a proceeding is at least ungenerous.

A Review of the Present State of Uterine Pathology. By JAMES HENRY BENNET, M.D., &c. London: John Churchill.

Lectures on the Diseases of Women. By CHARLES WEST, M.D. Part I. *Diseases of the Uterus.* London: John Churchill.

Lectures in Reply to the Croonian Lectures for 1854, by CHARLES WEST, of London. By HENRY MILLER, M.D., Professor of Obstetric Medicine in the University of Louisville. London: John Churchill. 1855.

DR. HENRY BENNET's views on uterine pathology were first promulgated in this country about twelve or fifteen years ago. Up to that time, it is not too much to say, that medical practitioners were very much in the dark as to the real morbid actions concerned in the production of those symptoms which all are so frequently called upon to treat. That the treatment then in vogue partook of the obscurity and uncertainty of the current pathology is nothing more than might be expected. It might, perhaps, equally have been expected that those obstetric physicians who had long been looked up to as the ultimate arbiters in diseases of this class—men who, having long enjoyed the confidence of the profession and the public, had naturally yielded to the conviction that they possessed the highest current knowledge and skill—should regard with distrust, if not with some more disingenuous feelings, the doctrines introduced by Dr. Bennet, involving as they did, such a total pathological and therapeutical revolution. Every prejudice seemed likely to be aroused against a young man, educated abroad, having no hold upon the very exclusive and somewhat aristocratic circle which monopolized the leading obstetric practice of this metropolis, who boldly charged his professional brethren with ignorance in this branch of medicine, and undertook to instruct those who had grown grey in experience—albeit, an uninquiring experience of routine.

Everybody now knows with what singular energy, extensive medical knowledge, and success, Dr. Bennet has urged his doctrines upon professional attention—with what candour he has constantly challenged his opponents to try them by the test of observation. His constant argument has been: My doctrines are the logical deductions from observation and practice; what observation and practice have yielded to me, the same teachers will yield to others, if they be consulted with candour and patience. But whilst a large body of intelligent and ingenious practitioners have pursued this course, and have thus acquired a well-grounded conviction of the general correctness of the new views of uterine pathology, others, more intent, we fear, upon discomfiting the author than upon refuting or establishing his doctrines, have approached the subject in a very different spirit. Hence it is that Dr. Bennet has often had occasion to defend, not his medical opinions and practice, but himself. He has led a militant career.

After a stormy period of twelve or fifteen years, he now takes a survey of the ground, and examines the present position of uterine pathology. At first sight he appears to be hemmed in by opponents on all sides. Croonian lecturers confront him; obstetric dictators denounce him; medical societies array themselves against him; but, like a skilful strategist, he is not slow in discovering the lack of cohesion and consistency of purpose amongst his antagonists. He reconnoitres the positions taken by two of the most formidable, and having ascertained that the artillery of neither of them can reach him except through the fortress of the other, he, in undisturbed security, leaves them to the task of mutual destruction. We know of few things more complete in the history of controversial literature, than the admirable and effective manner in which Dr. Bennet has established the truth of his own doctrines, by showing how the inconsistent objections of Dr. Robert Lee and Dr. West neutralise each other. The perusal of these chapters reminds one forcibly of the famed feline battles of Western Hibernia, where the combatants fight so well that, when they have done, nothing is left of them but their tails.

The three leading theories that have been generally brought forward to explain the symptomatology of uterine disease, and to controvert the doctrines advocated by Dr. Bennet, are then critically examined. The leucorrhœa theory is, perhaps, the one that has been urged with the greatest skill; but, examined carefully, it will be found to afford the strongest evidence of the truth of the doctrines it was intended to displace. The anatomical descriptions of the uterine neck, and the pathological observations of Dr. Tyler Smith, really confirm the views of Dr. Bennet in many essential points. They prove, for example, his leading proposition relative to the importance of the uterine neck as the seat of pathological actions.

A keen controversy has, as our readers well know, been waged as to the therapeutical conclusions to be drawn from pathological facts. There is no point upon which Dr. Bennet has been more fiercely assailed than that of treatment. It is not necessary here to repeat some of the rather harsh and unmeasured expressions in which the treatment by cautery has been denounced. To read them, an uninformed person might suppose that the mission of Dr. Bennet was to mutilate and destroy the uterus. It has been contended, for example, that the use of potassa fusa to the cervix uteri was fraught with danger, calculated to mutilate the uterus, and absolutely unnecessary and unjustifiable. As some may be led astray by authority in this matter, let us in a few words show in what the authority against this practice consists.

1. It is denounced by those who admit they have never used it nor seen it used, but who base their objections upon certain physical lesions they have seen in uteri several years after the presumed application of this agent. This objection is absolutely answered by the experience of those who

have used it, and who do not see such disastrous effects as are ascribed to it; and by the direct observation of such candid and acute observers as Dr. Barnes, who, having examined numbers of patients treated by Dr. Bennet and others at different periods, proximate and remote from the application of potassa fusa, have never detected any serious physical injury as the result.

2. It is denounced by some who contend, on theoretical grounds, that to apply a powerful cautery to such a highly sensitive and important structure as the cervix uteri, must be attended by dangerous and injurious consequences. This objection may be answered by Dr. West, who, however, pens the following passage for the express purpose of proving that the cervix uteri is a structure of little pathological importance:

"The cervix is less sensitive than the body of the uterus; the sound which passes along the canal of the former almost unfelt, generally finds the lining of the uterine cavity acutely sensitive. The cervical canal has been forcibly dilated; it has been incised; the tissue of the cervix has been burnt with the strongest caustics, as the actual cautery; or portions of it have been removed by the knife,—generally with no injurious consequence, often with so slight a degree of constitutional disturbance, or even of local suffering, as to surprise those who advocate, little less than those who condemn, such proceedings."

Dr. Bennet thus enjoys the singular triumph of being defended by his enemies.

The syphilis theory, the ovarian theory, and the displacement theory, are examined with equal skill. We believe that he has somewhat underrated the pathological independence and importance of these last conditions. Each enters for a greater part into the history of female pelvic disorders than Dr. Bennet admits. We are also clearly of opinion, that the body of the uterus is far more frequently liable to disease, especially hypertrophy and chronic inflammation, than would be assumed to be the case from the perusal of Dr. Bennet's writings. Dr. West's descriptions of some of the morbid conditions of this part of the organ, are amongst the most valuable in his book. We are further satisfied that Dr. Bennet has somewhat exaggerated the primordial character of inflammation of the cervix uteri, and, in a corresponding degree, depreciated the causative importance of many systemic disorders, or disorders of remote organs in relation to organic and functional diseases of the womb. By giving to each of these conditions its full import, the candid and patient investigator will, we believe, finally acknowledge that the organic changes wrought by inflammation in the neck of the womb must occupy a large part in uterine pathology.

The book of Dr. West treats upon other subjects than those immediately concerned in this controversy. We must, however, reserve them for notice upon a distinct occasion, and in the meantime gladly recommend his Lectures as in the highest degree instructive to all who are interested in obstetric practice.

Dr. Miller's Lectures are avowedly composed as a refutation of Dr. West's Croonian Lectures.

They are characterized by too much acerbity, too much of combative eagerness; but will, nevertheless, repay perusal for the facts and practical instruction they contain.

A Practical Treatise on Disorders of the Stomach with Fermentation, and on the Causes and Treatment of Indigestion, and on Diet. By JAMES TURNBULL, M.D. 8vo, pp. 160. London: John Churchill. Liverpool: A. Newby.

EXPERIENCE is the great teacher of medicine; nevertheless, it will not render a man a physician, unless its results be carefully weighed and compared, nor unless with it the individual be fitted with the necessary ground-work of science, knowledge itself being derived from observation and experience.

Experience, therefore, being so precious, the medical profession must always be indebted to those who make known the result of their observations—observations which will be valuable in proportion to the well-disciplined state of the mind of the observer, his freedom from prejudice and preconceived opinions, and his powers of induction.

The monograph under notice is from the pen of Dr. Turnbull, the physician of the Liverpool Royal Infirmary, already well known to medical literature. It is an inquiry into the disorders of the stomach arising from fermentative action, with their treatment, including an epitome on diet.

The author divides his work into six chapters. The first chapter is occupied with the consideration of natural or healthy digestion, the most important influences, having a reference to fermentative actions, to which the food is subjected in its passage through the alimentary canal.

In the second chapter the chemistry of fermentation is examined; the author states his views as to the effects of the yeast-plant, the sarcina, and other microscopic plants, as favouring or arresting fermentative action.

The third, fourth, and fifth chapters are devoted to an examination of the peculiar forms of the disorders of the stomach, arising from fermentative actions, with their pathology and treatment, including an analysis of symptoms of fermentative disorders, in which the remarkable microscopic plant, called the sarcina ventriculi, is contained in the vomited matter. In the treatment of disorders.

The last chapter is devoted to the examination of diet, in relation to the tendency of various articles of food and drink to promote or prevent fermentative actions. He believes that mustard and horseradish are agents which owe their value as condiments to their antifermentative proportions.

Dr. Turnbull's work is a highly practical one.

A Practical Treatise on the Diseases, Injuries, and Malformations of the Urinary Bladder, the Prostate Gland, and the Urethra. By S. D. GROSS, M.D., Professor of Surgery in the University of Louisville, &c. &c. Second Edition. Philadelphia: Blanchard and Lea. 1855. pp. 925.

WE have often thought a shilling hand-book, entitled "The Whole Art of Book-making," would form a very saleable addition to the Railway Library, or to some other of the several popular serial forms in which modern literature is wont to appear. Authors are plentiful as blackberries now-a-days, and though not given to reading much, but rather to scribbling, exist in numbers amply sufficient to constitute "an important class, for whose benefit the work is intended, in the faint hope that it may render smoother, to gleaners in the walks of literature, the thorny path of flowery composition." (Vide preface to the hand-book shortly to be published.) And yet the art referred to does not seem to be wholly unknown. We are not certain that our coming handbook would really supply a "desideratum which has long been painfully felt." (Vide future Preface again.) There is a good deal of evidence furnished by the appearance of our library tables, booksellers' windows, and advertising columns, in favour of the conviction that the art of book-making is certainly cultivated to a very considerable extent, and with a success which, as far as the consumption of paper, ink, and printers' labour are concerned, must be regarded as quite unequivocal.

An excellent illustration of this art, which in all future history may be said to be the legitimate offspring of the nineteenth century, is afforded by a very large portion of the ponderous work before us. In strict accordance with the principles of book-making, the subject being pathology, the work commences with a dissertation on the anatomy of all the parts concerned. This is the invariable starting point. Precedents, undoubtedly, and of ancient date, exist for such a course. It extends the book, and magnifies the author's assumed acquaintance with the anatomical, and therefore with the true basis of his subject. The greater the book the greater the man who wrote it, is the natural and popular inference—the application of a law which is cousin-german to the well-known receipt for determining the relative ability of any two physicians or surgeons respecting whom information may be required, and which consists in applying a foot-rule to their descriptive titles in the "Medical Directory" for the current year, the result to be estimated in inches.

Dr. Gross presents his readers with four initiatory chapters, comprising eighty-three pages, on the Anatomy of the Perinæum, Urinary Bladder, Prostate Gland, and Urethra, an unnecessary prolix account of a subject which would be far more advantageously studied, by any one who really wishes to obtain the aid of books in learning perineal topography, by a reference to one of the many reputable students' manuals of anatomy extant. What shall we say of a teacher of

anatomy who, in demonstrating this region, tells us that "the *fourth layer* of the perinæum is formed by five muscles," (p. 36.)—referring to the superficial set. Fancy the alarm of a young student who, in some unguarded moment of most discursive reading, should open these pages, and alight on this passage! We have heard that the dura mater may be dissected into nineteen separate and complete organic strata, but what is this to such "special" anatomy of the perinæum! We must, however, forego the temptation to select a choice illustration or two of useless refining, nor stay to transcribe the author's account of what will be the effect on the urethral curves of "holding the penis at an angle of about sixty degrees with the trunk, and pressing it down from its pubic attachments towards the perinæum!" (p. 76.)

A chapter on the "Nature and Composition of the Urine" follows. A paragraph headed "Rules for examining the Urine," and purporting to be specially drawn up for the work by an American author, whose name is mentioned, affords some directions which will amuse the English analyst. For example, we read,—

"When it is intended to make a very accurate investigation, from four to eight ounces of what is called the morning urine should be selected." After directing that it should stand two hours, he proceeds: "The fluid is next to be decanted into a tumbler, *when the finger will be able to determine its consistence*!" (p. 102.) Two lines further on, we are informed that "an excess of acid is always indicated by the formation of a sandy brick-coloured sediment within from twelve to twenty-four hours after the fluid has been voided,"—a fact peculiar, we should imagine, to western pathology.

At the end of this "introductory" matter, we at last arrive, in the course of the second hundred pages, at the "Diseases" proper to the urinary organs; and preparing to deal with the true subject of the volume, are compelled to encounter in its stead a chapter on "*Malformations*." We had entertained a notion that this was rather a subject belonging to the domain of anatomy. But let that pass. It is a fair *résumé* of some of the cases which have been from time to time published in the journals, and, as such, we are glad to recognise a useful piece of compilation. Under the head of wounds, injuries, and lacerations of the bladder, a considerable number of cases have been collected, which are extremely interesting. About thirty pages are next devoted to the various forms of fistulous opening between the bladder and neighbouring parts, under the names of "vesico vaginal, vesico-uterine, vesico-rectal, vesico-urethral, and vesico-intestinal fistules." And much useful information is conveyed in this compass, especially respecting the practice of Dr. Sims, of New York, in the employment of the suture in these difficult and distressing cases.

There is a looseness in the statements of the author which pervades every part of the work—a charge we should not feel compelled to make unless the instances were numerous and flagrant. A few must be given in illustration.

Commencing the subject of disease, with acute inflammation of the bladder, this affection is said to be "exceedingly infrequent"—an opinion which is entirely confirmed by our own experience. Nevertheless, "its causes are many and various;" and one of them "*often awakens*" it in a "violent and even fatal" form. It is said to affect isolated portions only of the bladder; and rules for the differential diagnosis of these local forms are given. The "anterior wall" alone may be inflamed, the neck or the bas fond, and, finally, "sometimes the disease is seated round the outlets of the ureters, which thus become involved in the affection, followed occasionally by suppression of urine, with its whole train of concomitant evils."—(p. 182.) Surely Dr. Gross ought to tell us on what facts he grounds the extraordinary opinion that acute cystitis may affect only the region of the orifices of the ureters, causing occlusion; and thereby fatal suppression of urine. In the following page, we learn that he has "*repeatedly* cut short, by the lancet alone," the most severe attacks of this complaint.

Next we have a variety of acute cystitis described, "in which there is an entire absence of constitutional disturbance;" but a "copious bleeding, with the aid of a gentle laxative, and a dose of Dover's powder," are "generally sufficient" "to effect a cure in thirty-six or forty-eight hours—sometimes, indeed, much sooner." Will our readers be disposed to recognise the existence of acute cystitis at all in such cases? We imagine not.

An example of the method in which the subject matter of the book is most unduly extended, may be given in the following:—"Abscess of the bladder" is the topic under consideration, and it is said to occur in a variety of forms and situations named, and to take certain courses, in illustration of some of which it would be satisfactory to have been referred to one or two veritable examples noted, if not by Dr. Gross, at least by some observers. Then the matter is said to point towards the cavity of the bladder, or into the rectum, sigmoid flexure or ilium, uterus, vagina, peritoneum, abdominal parietes, &c. And, lastly, we are told, "it is not impossible that a vesical abscess might, under peculiar circumstances, open into an enlarged ovary, ureter, or Fallopian tube. I am not aware that any cases of the kind have been recorded by authors, and I allude to the circumstance as one rather of possibility than of probability."—(p. 198.) In fact, an entire page is expended in the enumeration of the organs which lie in the vicinity of the bladder, and in the reiteration of the assertion that abscess *may* travel in the direction of any of them, irrespective of the existence of any recorded precedent of such action having occurred. If facts and bare possibilities be so utterly mingled and confounded, it is obvious that, in the estimation of Dr. Gross, the former are of exceedingly trivial value.

An entire section, entitled "Gangrene of the Bladder," arises out of the circumstance, that, on rare occasions, sloughing of its coats may occur in the last stage of acute inflammation, or after an injury. The so-called disease enjoys its own etiological, pathological, and anatomical description; it

diagnosis, and lastly its prognosis are sketched. In the paragraph devoted to the last-mentioned subject, we read that "recovery, it is true, sometimes occurs even when the gangrene is *apparently* extensive, but such an event must always be regarded as an exceptional one."—(p. 204.) Dr. Gross does not tell us by what evidence the existence of "extensive gangrene" of the bladder can be affirmed in the persons of patients who recover. We should be very sceptical as to the accuracy of the statement.

Ulceration of the bladder is ranked "amongst the rarest accidents to which this organ is obnoxious." Nevertheless, the most minute and detailed account of its form, causes, locality, symptoms, diagnosis, prognosis, mode of repair, &c. runs through fourteen long pages, which must of necessity, to a very great extent, be constructed on purely *à priori* views of what such an affection must involve.

A long section on "Catarrh of the Bladder" follows. It is described as "an inordinate secretion of white glairy mucus analogous to gleet, leucorrhœa, and other kindred affections, and is generally a *symptom* merely of a more serious disease." Nevertheless, according to the ordinary routine, a paragraph follows headed "*Symptoms*," (i. e. of the *symptom* catarrh,) and its "characteristic *symptom*" is said to be "an inordinate secretion of mucus!" After a full and minute description of this mucous secretion, we learn that it is frequently mixed with pus, the appearance of which as found mingled with it and urine is duly noted. Then comes the following passage:—

"The matter is often *puriform* instead of purulent. This appearance is denotive of a milder grade of disease, and often comes and goes as the catarrh, from some accidental or intercurrent circumstance, increases or declines in intensity. The fluid is commonly more intimately blended with the mucus, with which it forms a whitish, greyish, or milky and tremulous deposit, which becomes quite tough and viscid upon cooling, and always adheres with considerable firmness to the bottom of the receiver. It differs, moreover, from pus, in having an acid instead of an alkaline reaction." (p. 223.)

Will any pathologist be good enough to tell us what this "fluid" is, which, being neither pus nor mucus, possesses the characters above described.

The diagnosis of catarrh is said to be "always easy. Its characteristic symptom" (again) being "an inordinate discharge of mucus." Here follow some elaborate remarks on the distinctive diagnosis between it and the seminal fluid!

It is a very remarkable fact, that Dr. Gross has omitted altogether to describe chronic cystitis, an affection as deserving of special consideration as any one mentioned in his voluminous treatise. He has not considered it under any other name—that of catarrh, for example—having distinctly regarded this as merely a symptom common to several pathological conditions of the bladder.

But we shall have exhausted the reader's patience. Examples of this inaccurate style pervade the whole work; we have merely pointed out a few of those which occur in the first fifty pages devoted to disease, as they arose. In matters relating to operative treatment, there are not wanting indications of careless advice. Take the following pas-

sage as an example—one, by the way, which Mr. Coulson quoted for special reprobation in his work on "Lithotripsy and Lithotomy," rightly designating it "a most hazardous proceeding." Speaking of the difficulties of lithotomy, the American surgeon writes:—

"When there is reason to believe that the stone is encysted, it is advisable to introduce the finger into the bladder, and to rupture the cyst with the nail; or where this is impracticable, on account of its great strength and thickness, to divide it with a probe-pointed bistoury, or a knife fashioned like a gum-lancet, and furnished with a long handle."—p. 559.

Amongst much that is irrelevant and redundant, some remarks may be gleaned which may be useful to general readers. Some practical hints may be gained from the chapter on Paralysis of the Bladder. A long consideration is given to the subject of Calculus, and a lengthy Appendix at the end of the volume contains much new matter in relation to the frequency of that affection in different parts of the world. By dint of "cutting," as the theatrical critic expresses himself respecting a tedious performance in five acts, to the extent of at least one third of the matter, the production of Dr. Gross might be rendered a useful work. The second edition professes to be "revised and much enlarged." We shall hail the appearance of a third if it be "amended and considerably abridged."

INQUESTS AND MEDICAL TRIALS.

DEATHS FROM FRACTURES AND OTHER INJURIES OF THE CERVICAL VERTEBRÆ.

CASE 1.—G. A. R.—, a young artisan, about nineteen years of age, on the evening of July 8th, 1852, went to bathe in one of the ponds on Hampstead-heath. He undressed, and dived head-foremost off a bank into the pond, where the depth of water was about four feet. A companion, who observed with surprise and apprehension that he did not rise again, on noticing bubbles of air rising to the surface of the water, immediately called to another who was partly undressed, and who presently plunged into the pond and brought out the injured person in a position "doubled up," as described by this witness at the inquest. With great and praiseworthy promptitude the young men briskly rubbed the surface of their friend's body as it lay on the bank until some signs of animation were restored, procured assistance, brandy, &c., from a neighbouring public-house, and without delay sent for a surgeon, who arrived before the young man was removed from the verge of the pond. By the direction of the surgeon, Mr. Shaw, of Hampstead, the patient was immediately removed into the public-house above-mentioned, and placed in bed. In about a quarter of an hour after he was removed from the water he had recovered consciousness so far as to speak to those around him, and with a great effort he pressed the hand of Mr. Shaw, but he complained that he had lost the use of both his legs and arms, and he was soon found to be completely paralysed. No external injury was perceptible. One of his friends

remained with him until his death, which occurred at one o'clock in the morning of the 10th of July, about twenty-eight hours after the receipt of the injury. He was sensible during the first night, and a part of the next day; but he afterwards lost both the power of speech and sensibility.

As the death appeared clearly to proceed from spinal injury, no post-mortem examination of the body was made. Mr. Shaw, in some remarks on the case addressed to us since the inquest states—"There can be no doubt that the cervical portion of the spinal marrow was either torn or compressed by a fragment of a fractured vertebrae. When the man precipitated himself into the water, I suspect that the head was bent forward, and the back of the neck came violently in contact with some hard body at the bottom of the pond. I may add that there was complete retention of urine, requiring the use of the catheter, and that during the whole period of consciousness he complained of intense pain in the right arm, which, however, did not appear to have been injured.

"Some years ago I attended a very interesting case with Sir B. Brodie. A man fell out of a hay-loft and fractured two of the cervical vertebrae, driving the arches in upon their bodies, lacerating and compressing the spinal marrow, which was immediately followed by a total loss of all motion and sensation in the whole of the trunk and lower extremities, so that he might be pricked, pinched, or cut without his having the slightest knowledge of it. He, nevertheless, lived for nearly a *week* after the accident, being perfectly sensible, and he conversed as usual, but did not know that he possessed a body, except from the testimony of his eyes."

CASE 2.—Inquest held at Paddington, August 2nd, 1852.—The deceased, H. R.—, who had been a bricklayer's labourer, was carrying a hod of bricks along a scaffolding, when a pudlock worked out of its ward, the planks gave way, and he was precipitated to the ground—a distance of some thirty feet. He was stated to have fallen on one side of his body. He was at once taken to St. Mary's Hospital, arrived there at a quarter past five o'clock on the afternoon of July 29th, and was immediately placed in bed. He complained of pain at the back of his neck; all his limbs were paralysed; and the muscular actions of breathing were wholly carried on by the diaphragm. The breathing progressively became more laborious, and he died on the next day, about twenty-eight hours from the time he had met with his accident. He continued to be sensible until within half-an-hour of his death.

Mr. Trotter, resident-surgeon of the hospital, made a post-mortem examination. He found no external mark of injury, nor any remarkable morbid appearances in the chest or abdomen; but the fifth cervical vertebra was found fractured in several places, and the spinal cord, enclosed by it was completely broken up and disorganized.

It may be incidentally remarked as surprising that so few fatal accidents occur to bricklayers' labourers similarly engaged on scaffoldings, which

are often very imperfectly secured. Notwithstanding the vast amount of building which has for some years been going on in the parishes of St. Pancras, Paddington, Kensington, Hammersmith, and other parts of the western division of Middlesex, inquests in cases of death from falls such as that described are comparatively rare.

CASE 3.—W. G.—, an elderly man, an omnibus driver, stated to be both careful and sober, about twenty minutes past eight o'clock on the evening of May 7th, 1853 took his omnibus home to the yard in Kentish-town through a very narrow lane, which had never been properly made into a road. In consequence of a sudden jolt whilst guiding his vehicle through deep ruts, he was thrown off his box, and fell upon his back with his head curved forwards. He was removed first to his home, and on the next morning to the University College Hospital, where he was found to be paralysed from the nipples, downwards. His intellectual functions were quite unimpaired. He had a cough, and his breathing was difficult, but he improved in both these particulars. He died, however, on the 4th of June, twenty-seven days after the accident. On a post-mortem examination, a fracture of the fourth cervical vertebra was discovered.

Remarks.—No doubt whatever existed that this man had died in consequence of injury caused by a fall whilst travelling over a bad road; and the medical questions involved became completely subordinate to inquiries of another description. This case particularly illustrates the discursive nature of the duties of the coroner, whose knowledge ought to extend from that of the animal functions and the action of poisons to an acquaintance with some of the most complicated questions in civil law. Who was bound to keep the road in repair? for such party was responsible for the accident and death, and might become liable for the consequences. According to a local Act, the parochial paving-board was not compelled to keep in repair a road which had not been first made and delivered into their keeping by the owners of the adjoining property. The district surveyor gave evidence at the inquest, that the way in question was under no superintendence; that it was not private, because there was a thoroughfare for foot passengers; and, on the other hand, that the carriage road was not public, because it led nowhere except to the stables, and latterly to some new buildings in process of erection. He alleged that the paving commissioners were not bound to keep that road in repair; and he finally stated, that he did not know whether it was a public or a private way. In the abyss of doubt as to where responsibility lay, the jury returned a verdict that there was no evidence to prove who was culpable on account of the death.

CASE 4.—C. M.—, a middle-aged married woman, and the wife of an ostler, living at Uxbridge, whilst suffering great pain from a whitlow, got up in the night to procure some application for her finger; and in attempting to descend a dark staircase, fell down it upon her back. She

was presently afterwards found with her feet on the last step but one from the bottom, and lying on her side, with her head upwards on the stairs. Her husband, who, alarmed at the noise of the fall, had gone to her, carried her into a room on the ground-floor, called a neighbour, and went for Mr. M'Namara, surgeon, whose assistant attended. At first she was insensible; but by the time the surgeon's assistant arrived, she recognised all the persons around her, and had been removed to bed. She breathed with difficulty and noise; her utterance was thick; she complained of slight pains in her head, and at the back of her neck. The whole of the limbs were destitute of the power of motion; but sensation was not entirely destroyed, as she felt pain on an incision being made into the whitlow by Mr. Catlin, the assistant of Mr. M'Namara, at the time of his visit. One of the spinous processes in the neck could not be felt externally, and a dislocation or fracture of the corresponding vertebra was accordingly suspected. She lived only till about six o'clock in the morning of the 4th of July, 1854, or five hours and a half after she had fallen down stairs. At the post-mortem examination, it was ascertained that the spinous process of the fourth cervical vertebra had been broken off, and the laminae of that bone were also fractured; the broken pieces of bone pressed upon and indented so much of the spinal marrow as almost to divide it in two.

CASE 5.—S. W—, a man rather beyond middle age, a painter, on the evening of August 1st, 1854, was seen walking, or rather staggering, in a state of intoxication, along the road from Uxbridge to Hillingdon, when, as he himself stated, in endeavouring to pick up something, he stumbled and fell forward, pitching with his head against the ground, as was proved by a scar on his right cheek. Some men, who shortly afterwards came up, turned him over on his back, and then left him on the footway, in the charge of a tradesman who lived close by and had come to the spot. The latter gave him some water to drink, washed his face, and tried to put him on his legs; but on finding that he had no power to walk, he set the man against the wall, untied his neckcloth, and soon had him removed home. The patient was seen that evening by a medical student, who supposed him to be merely suffering from the effects of drink; but on the next morning he was visited by Mr. Rayner, surgeon, of Uxbridge. From the want of motion in the limbs, and of sensation all over the lower part of the body, distension of the bladder, and inability to pass urine, as well as pain complained of in the neck, Mr. Rayner was led to suppose that the man had fractured one or more of the cervical vertebrae. On examination, Mr. Rayner detected, as he believed, that the fifth cervical vertebra had been broken, as, on pressing the spinous process of that bone with the finger, increased pain was occasioned. Some sensation remained about the shoulders, but none in the arms. Considering it to be a hopeless case, in which impression Mr. Rayner was confirmed by the opinions of Mr. Sulwell and the late Mr. Cane, little was done in

the way of treatment beyond withdrawing the urine night and morning. The bowels relieved themselves involuntarily and unconsciously. The patient was perfectly sensible until within a short time previous of his death, which occurred on Aug. 7th, six days after the receipt of the injury. As the nature of the accident appeared clear, and no other person was involved in blame on account of it, a post-mortem examination was not required for the purpose of the inquest, and accordingly none was made.

This instance presents an analogy with Case 1; in both cases it will be noticed how very short a fall was sufficient to produce fatal injury in the spinal column.

CASE 6.—R. Mullins, an excavator, thirty-one years of age. In this case, a man being in custody on charge of having killed the deceased, the notes relative to the occurrence were taken more fully than in some of the preceding instances. The inquest was held at Hampton, January 1st, 1855. The deceased man and several of his fellow labourers were in the tap-room of the public-house between five and six o'clock on the evening of December 18th, 1854. Some dispute arose, and Mullins, in an intoxicated state, advanced towards a man named Miller, who was standing with his back to the fireplace, and he struck Miller twice on the face. Miller, who was said to be even more intoxicated than the other man, with much forbearance took no notice of the first blow, but after the second he ran towards Mullins, and they had what was termed a "rally" together, at the end of which both men fell on the floor. No blow was alleged to have been struck on either side during the rally, or wrestle. The witnesses differed materially in their statements as to the position in which the men lay on the ground after the fall; some asserting that Miller fell on his back and Mullins upon him; others—and this was more probable—that Mullins fell on his back; and others, again, stated that the men fell side by side. Mullins was raised up by some of the bystanders and set upon a bench, but he said that he could not sit, and was then laid by some of them upon the ground. He complained of being hurt, but he could not describe where, or in what manner; and as soon as a cart could be procured he was removed to his home, about a mile distant, unable to move any of his limbs, although he could turn his head. As he was supposed to be suffering simply from intoxication, he was merely placed in bed, and no surgeon was sent for until the next day. Mr. Woodd, assistant to Mr. Holberton, surgeon, of Hampton, being then accidentally near his residence, visited him, and found him propped up in bed, destitute of motion and sensation throughout the trunk and extremities, but still quite sensible. No treatment adopted could be effectual, and the man died shortly after five o'clock on the ensuing day, December 20th, about forty-eight hours after sustaining his injuries. On the post-mortem examination, a slight bruise was visible at the back of the neck, but the skin was unbroken; no mark of contusion existed elsewhere. The organs in the chest, and some in the abdomen, were congested. In the head, a con-

siderable effusion of coagulated blood was found outside of the dura mater at the base of the brain, and this was continuous throughout the spinal canal, down to the lumbar vertebræ. The extravasation of blood in the spinal canal was greatest in the neck, and particularly within the fifth cervical vertebra, to which occurrence the loss of power and the death was obviously attributable. In this case it was not stated that any cervical vertebra was found fractured.

It may be mentioned that, as the testimony of all the witnesses exculpated Miller from any intention to do injury to the deceased, and the evidence went unanimously to prove that no blow had been struck during the scuffle, the jury returned a verdict of Death by misadventure, and Miller was speedily released from custody.

CASE 7.—T. F.—, a workman in a carpet manufactory, aged forty-three years. Inquest at Middlesex Hospital. The deceased was brought into the hospital about mid-day on the 16th of April, 1855. He was then sensible, and complained of cold; he could not move any of his limbs, but no external injury was visible. He became insensible at about half-past nine o'clock on the night of that day, and at a quarter past eleven he died. It was deposed in evidence that about two o'clock on the afternoon of the preceding day his master met him intoxicated in the street, and desired that he would accompany him to the warehouse. The deceased went within sight of his master up a ladder-staircase to the first floor, and from a height of about twelve feet he fell backwards over his master, who was on the lower steps of the ladder, and down to the ground, as it was supposed, from giddiness or unconsciousness produced by intoxication. On being taken up, he was found to have lost the use of all his limbs, and was at once removed to his home, where he remained until taken to the hospital the following day. His death occurred about thirty-one hours after the accident.

Mr. Norton, house-surgeon to the Middlesex Hospital, made a post-mortem examination. The lungs and heart were found healthy, and the brain was in a natural condition, except that some bloody serum existed in its ventricles. Some extravasated blood was seen beneath the scalp over the left parietal bone. The seventh cervical vertebra was fractured across its articulating processes, and the spinal cord opposite this injury was softened for about an inch of its extent, and presented a clot of blood in its substance. To these injuries in the neck the cause of death was assigned.

Of the seven patients whose cases are above detailed, one lived only five hours and a half after the accident; three died in little more than twenty-four hours; one lived for two days; another for six days, and another for twenty-seven days afterwards. In a case detailed by Dr. Eade, (*THE LANCET* for 1855,) the patient lived for nearly four months. But by far the most remarkable case of this description with which we are acquainted is narrated in a memoir of one John Carter,* of

Coggeshall, in Essex, who lived for *fourteen years* after the injuries which deprived his limbs of motion and sensation. Carter, at the age of twenty-one years, in 1836, slipped from a tree at the height of about forty-feet from the ground, and fell to the earth upon his back. He was taken up senseless, and moved none of his limbs afterwards. Muscular power in the neck and head was, however, retained, and, it is added, a slight power of motion in the chest and left shoulder. The brain appeared to have suffered no injury from the fall. His mental faculties remained unimpaired during the rest of his life, and he partially supported himself by drawing, by means of a pencil placed between his teeth, upon paper adjusted for the purpose upon appropriate machinery. Some of his drawings, made in this way, copies of which are given in his Memoir, have singular excellence, and one is said to be in the possession of Her Majesty. His death was occasioned by pulmonary disease, accelerated by his being overturned with a small chaise in which he was being drawn. At a post-mortem examination, the fifth, sixth, and seventh cervical vertebræ were found thrust out into an arch, and the seventh was dislocated so as to press upon the spinal cord. We learn that a considerable quantity of extravasated blood was found in the immediate region of this dislocation, which effusion was probably a result of his last fall; but as the Memoir was written by a non-professional gentleman, we have no more precise account of the anatomical peculiarities of the injuries sustained than that just given.

Chemistry and Pharmacy.

REPORTS

ON THE

PROGRESS OF CHEMISTRY,

ESPECIALLY WITH REFERENCE TO ITS

APPLICATIONS TO MEDICINE AND PHARMACY.

By WILLIAM BASTICK, Esq.,

PHARMACEUTICAL CHEMIST.

No. IV.

Estimation of Acetic Acid.—It is well known that the method of estimating acetic acid by means of a standard solution of an alkaline carbonate, gives inaccurate results. The cause of this failure has been attributed to the volatility of the acid, and to the incapacity of the colouring matter to give, with exactness, the point of saturation. Nicholson and Price, however, state that these are not the causes of the failure, for when acetic acid is mixed with carbonate of potash, until an alkaline reaction is produced, and the mixture is distilled, acetic acid is evolved, not because, as Williamson assumes, the acetate is decomposed, but because the neutral salt reacts alkaline, and this reaction preponderates over a little free acid, which is not saturated with the alkali. This they consider is proved by the following experiment:—When acetic acid of known strength is saturated with the quantity of carbonate of potash required by theory,

* Memoir of John Carter. By William James Dampier, *Vicar of Coggeshall, London, Parker, 1850. 12mo, pp. 44.*

the distillate reacts completely neutral, and the dry fused residue strongly alkaline when dissolved. The latter solution consequently contains neither caustic nor carbonated alkali, for it gives no precipitate, either with baryta water or with an ammoniacal solution of chloride of calcium, even when it was previously boiled with carbonate of ammonia. In a similar manner, carbonate of soda behaves towards acetic acid. Acetate of soda recrystallized four times, still reacts strongly alkaline. Therefore it follows that only by the saturation of acetic acid with a neutral carbonate of lime or baryta, and the estimation of the gas evolved, or the undissolved residue, it is possible to ascertain, with accuracy, the strength of acetic acid.

Poisoning by Oil of Turpentine.—Marechal has recorded a case of poisoning by oil of turpentine caused by a woman living for several days in a recently-painted room. The symptoms were those of painters' colic. He considers that this disease is not produced, as is usually supposed, by the white lead, which is non-volatile, but by the evaporation of the oil of turpentine, whose poisonous action he has proved by several experiments.

The Presence of Sulphocyanuret of Potassium in the Saliva.—The saliva of man affords, as is well known, the reactions of sulphocyanogen. Longet gives the following results of an investigation on the occurrence of this body:—

1. The presence of sulphocyanuret of potassium in the saliva of man does not depend upon certain accidental and pathological influences. It is entirely normal.

2. Sulphocyanuret of potassium exists not only in the saliva of the mouth, but also in the parotoid, the submaxillary, and the sublingual glands.

3. Its presence is an evidence of a salivary fluid, because other secretions, as sweat, urine, tears, the fluids of the brain, and the spinal marrow, the serum of the blood, and the secretions produced by vesication contain no trace of sulphocyanuret of potassium.

4. This salt is always present in the saliva in variable but only very small quantities; the variation in the quantity depends neither on age, sex, food, nor on peculiar conditions of the nervous system, but alone on the concentration of the saliva.

5. In very great dilution of the saliva, which appears when it is largely secreted, the quantity of sulphocyanuret of potassium is so small that reagents no longer indicate its presence; but when the saliva is concentrated by evaporation, its reactions become evident. The author has proved this in pyrosis and mercurial salivation.

6. The healthy or diseased condition of the teeth is entirely without influence on the existence of sulphocyanuret of potassium.

7. Sulphocyanuret of potassium does not arise from a spontaneous decomposition of the saliva.

8. To isolate this salt, it is best to analyze the saliva of intemperate persons.

9. Of all salts the chloride of iron is the most suitable for the detection of sulphocyanuret of potassium. It communicates to the saliva, when it is sufficiently concentrated, a beautiful blue-red colour.

10. No other organic or inorganic substances contained in the saliva afford this reaction, and the opinion is erroneous that the red coloration can result from salts of acetic acid contained in the saliva.

New Method for the Estimation of Iron in Urine.—Böcker proposes to estimate the quantity of iron in urine by means of a standard solution of hypermanganate of potash. To effect this object he evaporates 100 cub. cent. of urine to dryness in a platinum dish, destroys the organic matter with nitric acid, dissolves the residue in pure muriatic acid, to which half a drachm of pure zinc has been added, and gently heats in a sand-bath. As much muriatic acid should be used as will dissolve the zinc. The solution is then filtered, and to the filtrate is added a standard solution of hypermanganate of potash from a burette until the fluid acquires a fine rose colour. From the quantity of manganese solution employed for this purpose, the quantity of iron in the urine may be calculated. The zinc must be first tested by the same means to ascertain the quantity of iron present in it. This is then deducted from the total quantity of iron in the urine. Böcker found by this method about .001 grain of iron in 100 cub. cent. of urine.

Action of Ammonia on Chloroform.—Heintz states that when a strong alcoholic solution of ammonia is mixed with chloroform, and the mixture exposed to a temperature between 365° and 374° Fahr., much cyanide of ammonia is formed, as well as formiate of ammonia.

The Presence of Hippuric Acid in Urine.—Dr. Duchek has observed that his urine, seven or eight hours after eating prunus domestic. chlorocarp., constantly contained a considerable quantity of hippuric acid. He afterwards examined the fruit, and found benzoic acid in it, but not in sufficient quantity to account for the whole of the hippuric acid found in the urine; consequently he believes that the fruit contains some other compound of benzoyl. Duchek negatives the opinion of Liebig and Bird that hippuric acid is a constant constituent of human urine, and agrees with Lehmann that it is always found in the urine of diabetic patients and of those suffering from fever.

New Volumetrical Method for the Estimation of Chlorine.—When phosphate, arseniate, or carbonate of silver is brought into contact with a solution of common salt, these salts, are converted, in neutral and slightly alkaline liquids, into chloride of silver; and another soluble salt, accompanied by the loss of their peculiar colour. The greater the

colour of the silver salt, the easier the completion of the conversion is to be perceived; and on this account the chromate of silver is particularly suitable for the volumetrical method proposed by Dr. Mohr, and hereafter described. When a drop of silver solution is present more than can be converted into chloride of silver by the common salt, chromate of silver appears at once which colours the liquid blood-red. If two burettes are filled with decimal solutions of common salt and nitrate of silver, and from the common salt burette any given quantity of the solution is poured, to which a little solution of neutral chromate of potash is added, and then as much of the silver solution as will produce the red colorization, it will be found that with different quantities of the salt solution quantities of the silver solution are required which all stand to another, in the same proportion as the quantities of common salt employed. The method is, therefore, exact. Comparatively there is required for

Common-salt solution.		Silver solution	
4.20 cubic cent.		4.80 cubic cent.	
6.70 " 		6.80 "	
11.00 " 		11.10 "	
12.00 " 		12.10 "	
17.65 " 		17.75 "	
18.20 " 		18.30 "	
25.85 " 		25.95 "	
26.00 " 		26.10 "	

Thus it will be seen that every time $\frac{1}{10}$ cubic cent. more of the silver solution is required; and this is that quantity which is necessary to indicate the termination of the precipitation. Now as the salt solution must be dropped in to cause the disappearance of the red coloration, the quantities consumed from both burettes are equal. Dr. Mohr states that alkaline chlorides can be estimated with the greatest delicacy by this method; and it may be employed, with the best results, to ascertain the quantity of chlorine in the urine, mineral waters, saltpetre, potashes, sodas, and chlorate of potash.

The Distillation of Oil of Peppermint.—Dr. Geiseler, who has conducted some investigations on the respective merits of distilled oil of peppermint by steam heat and by the heat of the naked fire, has arrived at the following conclusions:—

1. Dried peppermint herb affords by distillation over the naked fire a greater quantity of oil than by distillation by the aid of steam.

2. The oil obtained by steam distillation is specifically lighter, and of a brighter colour, than that distilled over a naked fire.

3. By the rectification of the latter by means of steam heat, an oil is obtained which is equal to that obtained by steam-distillation, and has a specific gravity of .910, while the oil remaining behind by steam-rectification in the retort shows a specific gravity of .930.

4. Fresh peppermint herb gives by steam distilla-

tion and by distillation over a naked fire an equal quantity of oil.

5. Dried peppermint herb contains two different oils, possessing different boiling-points and different specific gravities. The oil of higher specific gravity must be formed from that of the lower specific gravity during the drying and keeping of the herb, as the freshly-dried herb affords only one oil, of specific gravity .910.

The Composition of Cows' Milk.—Struckmann has analyzed the milk of cows obtained in the morning, at noon, and in the evening, and deduced the following conclusions from his analyses:—

1. The fatty constituents of milk increase considerably from the morning until the evening, while the quantity of protein substances remain almost constant.

2. The milk obtained at noon contains the greatest amount of sugar; that obtained in the evening the least.

3. The specific gravity of milk is no criterion of its value; the increase of specific gravity shows an increase of protein substances, or sugar, or salts; but the decrease of its specific gravity can depend on the increase of its fatty constituents, as well as on its dilution with water.

Two New Artificial Methods for the Preparation of Urea.—1. It has been frequently suggested from the chemical relations of urea that it is an amide of carbonic acid. Natanson considers that, by the following research he proved that carbamide and urea are identical.

When carbonate of ethyl oxide is treated with ammonia in a sealed tube at 212° Fahr. only uräthane is formed, but if the temperature is raised to the boiling point of uräthane, that is, to about 356°, it is converted by the excess of ammonia into urea. In the empty portion, a sublimate of undecomposed uräthane forms; the watery liquid contains the urea. If this solution is evaporated to dryness and exposed for a long time to a temperature of 212° the uräthane volatilizes, and pure urea, which can be easily recognised by its behaviour with nitric acid, remains behind. To completely separate the uräthane, the urea obtained should be washed with ether, in which the former is readily soluble. The chemical and physical properties of the urea thus obtained, as well as its composition, entirely agree with those of urea naturally formed.

2. Regnault had, in his research on the action of phosgene gas on ammonia, obtained a white saline mass, which he considered from its reactions was a mixture of carbamide and sal ammoniac. He was unable to separate and examine these substances, but nevertheless concluded from the reactions of the mixture that it contained no urea. Although Regnault's reactions were correctly observed, Natanson considers that this mixture contains urea. The principle cause of the success of the experiment depends on the complete dryness

of both gases. To effect this result, Natanson prepares phosgene gas by conducting carbonic oxide through boiling perchloride of antimony. Both gases were then mixed in a dry and capacious flask. By boiling the mass thus obtained with absolute alcohol, evaporating the alcoholic extract to dryness, dissolving the extract in a little water, and decomposing with nitric acid, the presence of urea can be detected; after a few hours the nitrate of urea is separated. The entire quantity of urea may be obtained when the saline mass is decomposed with an excess of baryta water to destroy the sal ammoniac, then dried under the air-pump over sulphuric acid, and the urea extracted by means of absolute alcohol. The alcoholic liquid should be again evaporated, the residue dissolved in water, the trace of baryta removed by carbonate of ammonia, and then the urea is precipitated from its concentrated aqueous solution by nitric acid. The urea thus obtained, Natanson states, has all the properties of that obtained from urine.

SCOTLAND.

[FROM OUR EDINBURGH CORRESPONDENT.]

THE LATE MEDICAL SESSION.—Towards the latter end of July, the academical economy of Edinburgh begins to experience marked and important changes. The attendance upon lectures is less regular, note-books are less visible, and even the "reading men" display a nervous hilarity, betokening a near cessation of their labours. As the month progresses, clusters of students may be observed upon the college steps, and the extra excitement of their demeanor leads even a casual observer strongly to infer that the examination days are "on." Not a little anxiously the candidates for academical honours watch the arrivals of the clerical looking gentlemen, who with thoughtful eye and sober mien, enter the walls of Alma Mater, invested with all-potent powers in the great ordeal of M.D.

With the 1st August, "Capping day," the Edinburgh medical session closes, one great feature in Edinburgh life ceases to be: like a somnolent Titan, the great seat of learning sinks into repose, and slumbers pleasantly for three months, ultimately to be re-awakened and merge into new being with the November fogs. The late medical session has been perhaps in some respects more than usually interesting. The attendance of students has been larger than for some time past, and the excellent system of tuition introduced by Professor Goodsir, cannot fail to attract those who would be made thoroughly conversant with anatomy, while yet they are junior students.

The lamented death of Sir George Ballingall has rendered vacant the chair of military surgery, a vacancy not likely to be filled, if we are to believe the declaration of Government to the effect, that a sufficiently competent person cannot be found to occupy the chair.

The Thomsonian Collection of Minerals has af-

forded to the students an extra course of lectures on mineralogy, and the minerals themselves, so long unseen by frequenters of the museum, are now fairly displayed to view in a manner more in accordance with the terms of the legacy.

Dr. Warburton Begbie has successfully carried out his course of the "History of Medicine," carefully chronicling the principal eras in its history as medicine has advanced from the time of Hippocrates to the present, and ably contrasting the theories then popular with some of our more modern ones. Dr. Begbie merits deservedly the thanks of the large class who attended his interesting lectures.

The Medical Societies of Edinburgh have not languished during the season. The Medico-Chirurgical, if somewhat exclusive and displaying a fond partiality for "set doctrines," has nevertheless held on its course with spirit and ability. The Royal Medical Society successfully terminated a session of unusual interest and zealous controversy. With such assistance as that contributed by Professors Bennett and Goodsir, it is a matter of no surprise that the Royal Medical Society has largely improved its position and standing.

The Harveian Society, rendered prominent of late by the ability of its president's dissertation, will eminently maintain its status when presided over by so accomplished a *litterateur* as Dr. Malcolm.

The Hunterian Society, extending its session through the summer time, has been well attended and successful in its duration. Great praise is due to Dr. Glen for the manner in which he has conducted the affairs of the Society. The other associated societies of the university have little cause of complaint of the late session, and the career of each seems to have been more fortunate than usual.

In other respects, too, Edinburgh has maintained its ancient fame: party and controversial spirit has displayed a lively animation during the present year. An insatiate desire seems to exist for everyone to grasp the largest plum in the smallest public pie; so very general a wish is remarkably calculated to engender petty animosities and no little discontent—thus it is cliques are formed. Guelphs and Ghibellines spring into being, and too frequently concentrated power excludes real merit. A fortunate partisan from the impetus of his *confrères*, may be sent flying over the heads of some fifteen seniors, and the seniors in turn are imbued with an antagonistic feeling, and so it is rival parties are made; and the medical community of Edinburgh disagree amongst themselves. This unfortunate system will, it is hoped, ere long, cease, and the next election of the councils will terminate satisfactorily to all, without leaving any rancour or ill-feeling behind.

The prospects of the Royal Infirmary are anything but cheering, but sufficient has been both written and said upon the subject to place it fairly before the public. If the inhabitants of Edinburgh remain merely inactive witnesses of its increasing embarrassments, it cannot fail materially to affect the welfare of the university; theory without prac-

tice would be unpopular in any medical school, and if the number of beds continue diminishing in the Infirmary, the offices of physician and surgeon will soon become little more than sinecures. During the next three months, much may be done in aid of this institution, and for the cause of humanity, science, and the credit of Edinburgh, let us hope that it will.

INFLUENCE OF OFFENSIVE TRADES ON THE PUBLIC HEALTH.

To the Editor of THE LANCET.

SIR,—I read Dr. Snow's communication in your journal with much interest, as I think with him "that the science of Public Health may be as much benefited by the removal of errors which stand in the way of its progress as by direct discovery;" but I cannot agree with the conclusions which he has drawn from the examination of the statistics quoted. In the first place, he has taken the census of 1851 as the standard by which to measure the mortality in persons above twenty years of age, instead of allowing for the increase of population. Now as the census was taken on March 30th, 1851, and the mean of the period for which his statistics are calculated was September 30th, 1855, the population above twenty years of age, allowing the increase to have been at the rate of two per cent. per annum, should have been estimated at 687,730, instead of 632,545; and the rate of deaths at 222 instead of 241 deaths in each 10,000 inhabitants of London above twenty years of age.

There is also another error which has escaped his observation, and one which it is almost impossible to eliminate from calculations of this kind—viz. that persons work at these offensive trades only whilst their habits and strength are moderately good, so that many die either in the workhouse or as proprietors of small shops, years after they have ceased to work at these trades; and consequently many who have become incapacitated while thus employed, are returned as being of another occupation when they die. Further, the time over which the inquiry extends seems totally inadequate to obtain correct results. It may be objected to these observations that the workers in these offensive trades have increased proportionately with the population at large, and that therefore the census returns being taken as the basis for the one, may also be taken for the other. But it is not probable that the increase has been proportionate, for the number of persons employed in any trade, must vary with the prosperity or depression of that trade; and the number employed, under 7000 in these trades, is so small as to admit of much error in conclusions drawn from a short period. As observed by the Registrar-general, a more certain test would be to ascertain the ages of the persons employed in the trades, and their age at death, as well as the rate of death; and I cannot agree with

Dr. Snow that the fallacy, if any, tells against the occupations examined.

I do not make these remarks at all in disparagement of Dr. Snow's paper, but merely to show that the facts which he has discussed may be viewed from another point, and may lead to different results than those which he has arrived at. The influence of offensive trades on health is one of the subjects which will receive attentive consideration from the members of the Metropolitan Association of Medical Officers of Health, and I expect, with the result of showing that these trades are injurious to the health of those employed, as well as of those who live in their vicinity. The importance of the subject must be my apology for the length of this communication.

I remain, Sir, faithfully yours,

JOHN W. TRIPE, M.D.,
Medical Officer of Health for Hackney District.
Commercial-road.

THE TESTS FOR STRYCHNINE.

To the Editor of THE LANCET.

SIR,—As contradictory opinions have been expressed regarding the relative value of the substances employed as tests to develop the peculiar colour which indicates the presence of strychnine, we beg to forward the following remarks, feeling that no doubt ought to be allowed to remain upon any point connected with this poison.

Your number of the 28th ult. contains the first part of Dr. Letheby's valuable communication. In it he states that, "of all the substances which have been proposed for thus developing the tints with strychnia, bichromate of potash is assuredly the worst." In our letter published in the same number of your journal the employment of this substance is recommended; and had we expressed any opinion as to its merits, it would have been the very opposite of that quoted; for, by pursuing the method about to be described, it will demonstrate the presence of strychnine in cases where the peroxide of manganese would utterly fail.

When the quantity of strychnine to be detected is comparatively large,—say, from the $\frac{1}{1000}$ to $\frac{1}{500}$ of a grain,—it is of little consequence what test is employed, or how it is applied; but when small quantities of blood, of tissues, or of the liver, are the subject of analysis, then it is of the utmost importance to use the most delicate reagent; and that, undoubtedly, is the bichromate of potash.

The method of manipulation is as follows, but it must be understood that it is one requiring extreme care:—a portion of the solution containing the poison, and which should be one in chloroform, should be sucked into a tube, with a fine capillary termination, and evaporated on a piece of white porcelain in as small a space as possible. This can readily be done by holding the tube perpendicularly, and touching a piece of white porcelain previously warmed, with the point, when a small

quantity of the solution will escape and evaporate, and repeating this process until a sufficient quantity for testing be left on the spot. When the porcelain is quite cold, the spot should be moistened, by means of a glass pen, with sulphuric acid to which a small quantity of a saturated solution of bichromate of potash has been added, when the characteristic tint of strychnine will appear. The sulphuric acid employed in the above experiment is prepared by adding, by means of a glass rod, a saturated solution of bichromate of potash until it imparts a feeble yellow tint. It is of the utmost importance for the success of the experiment that this reagent should be recently prepared as the chromic acid is soon converted into oxide of chromium, which combines with the sulphuric acid—a change, we would remark, which takes place with extreme rapidity under the influence of light, of course rendering the mixture useless. It must be distinctly understood that these remarks refer to the detection of extremely minute quantities of strychnine, and that we propose no alteration in the modes that we and others have recommended when the quantity is comparatively large.

A careful operator, by following the above directions, will have no difficulty in detecting even so minute a trace as the ~~residue~~ of a grain of strychnine; but he must bear in mind that, whilst he must have sufficient bichromate of potash, it is equally important to avoid excess. If he has his proportions nicely adjusted, he will find that the bichromate loses its own peculiar tint while producing the test colour of the strychnine, and consequently in no way interferes with the result.

Upon the capabilities of this adjustment the real value of the bichromate depends. It is obviously impossible for us to give the precise proportions of sulphuric acid and bichromate of potash (chromic acid will do quite as well) for the quantity of strychnine; but every operator, by experimenting with solutions of strychnine of known and diminished ratios, will soon learn for himself.

We have stated that the solution of strychnine should be in chloroform; for while, with the precautions and manipulations that we have published, we believe that preference will almost universally be given to this fluid over ether, benzole, &c., for the purpose of *first* separating strychnine from the subject of analysis, still we readily admit that the fluid chosen for this purpose is not of such paramount importance as that the solution of this poison finally prepared for treating should be in chloroform, for the simple reason that, while the other fluids, such as ether, have a remarkable tendency to spread over the surface on which they are put for evaporation, and so dilute, as it were, by extension, chloroform, by having a contrary tendency, leaves the strychnine on a smaller space than the fluid occupied at the moment of its transference to the porcelain.

We observe with satisfaction that Dr. Glover, in his letter recently published in your columns has

expressed an opinion identical with ours published by you at the same time.

We are, Sir, your obedient servants,

J. E. D. RODGERS, M.R.C.S.E., &c.,
Lecturer on Chemistry at the St. George's
School of Medicine.

G. P. GIRDWOOD,
Assistant-surgeon, Grenadier Guards.
Laboratory, St. George's School of Medicine, July 1864.

ON THE EFFECT OF BELLADONNA IN ARRESTING THE SECRETION OF MILK.

(LETTER FROM DR. GOOLDEN.)

To the Editor of THE LANCET.

SIR,—As nothing is read with greater interest by practical men than your reports of clinical facts, I hope I may claim a corner in your journal, at as early a date as convenient, to relate the following cases, illustrative of the effect of belladonna in arresting immediately the secretion of milk.

E. J—, aged twenty-eight, was admitted into Anne's Ward, St. Thomas's Hospital, with severe rheumatic fever. She had been ill four days, with a child at the breast four months old. At the time of her admission she had swelling and acute pain in both wrists, right elbow, both knees, and left ankle. The knee-joints were distended with synovia, and erythematous patches were on the skin of the knees, ankles, and wrists. She was bathed in perspiration, and the secretion of milk was abundant. According to the regulation of the hospital, the child was removed; indeed, from her helpless condition, it was necessary, considering the difficulty of attending to an infant in a ward with other patients. Soon after her admission she took eight grains of calomel and a grain and a half of opium, followed by a senna draught; and one scruple of nitrate of potassa, ten grains of bicarbonate of potassa, and half a drachm of spirit of nitric ether, in peppermint water, every four hours. The joints were covered with cotton wool.

On the following day, at two o'clock, I found she had been freely purged; the joints were in nearly the same state. She had had no sleep. The breasts had become tumid, hard, painful, knotty, and extremely tender. The superficial veins were distended. Some milk had been drawn, but the process was attended with great pain, and we could not listen to the heart's sounds on account of the tenderness.

A milk abscess, in complication with rheumatic fever, was of all things to be avoided, and unless the secretion could be at once arrested it appeared inevitable. In this strait I recollected that I had somewhere met with an observation (but I cannot remember whether it was in an English or foreign journal) that atropine applied externally to the breasts would dry up the milk; and thinking it reasonable, I caused the areola of the breasts to be smeared with extract of belladonna, in the same way that it is used to dilate the pupil of the eye. I likewise ordered the addition of half-drachm doses

of colchicum wine, knowing that whenever milch cows eat the meadow saffron in the pasture, they immediately become dry; and though I have not much faith in colchicum as a remedy in rheumatic fever uncomplicated with gout, there could be no objection to its use, and it has the sanction of much higher authority than my own.

On my third visit, the following day, the first inquiry was about the breasts. They were all right. But was it the colchicum or belladonna that had relieved them? The extract was used before I left the ward; before the mixture was given the secretion of milk had been arrested and the breasts had become soft. The rest of the case has no further special interest. I will only state that there was no heart affection, and that the fever, though very severe while it lasted, was of short duration, and the patient left the hospital quite well in fourteen days.

The second case that occurred to me was uncomplicated with any disease, and such as would usually fall under the care of the accoucheur rather than the physician:—

A lady, the wife of a clergyman, was travelling with her husband, and in order to accompany him, had weaned her babe, (then seven months old.) Happening to be at Oxford at the commemoration festival, he came to me in great trouble, telling me that his wife had done a foolish thing in weaning the child, and that they were now arrested in their progress in consequence of the state of her breasts. They were tumid, very tender, painful and hard, with large superficial veins, and the milk had been drawn with difficulty several times, with temporary relief. I recommended the application of the extract of belladonna to the areolæ, desiring them to send for a medical practitioner if the inconvenience did not immediately subside, or unless she felt quite well. A few days brought me a letter, giving me a very satisfactory account, and thanking me for what she was pleased to call my wonderful prescription. Within two hours, she was perfectly relieved, the milk absorbed, and (what is very important) there was no fever or other inconvenience attending the sudden suppression of the milk; and instead of taking the opening medicine I had prescribed for her, she continued her journey the next morning.

I have not been able to discover that the fact that belladonna is available for the purpose of arresting the milk secretion, is at all generally known—certainly it was not to several accoucheurs in large practice of whom I have inquired. The fact is important, if true, for then milk abscesses will become a matter of past history, and probably many diseases of the breast may be rendered less complicated by its use.

The two cases I have detailed are not sufficient to prove that it will always be either successful or safe, but they render it highly probable that it is so. My assertion may have a temporary interest, and soon be forgotten, and the opportunities of observing milk abscesses, and their early progress, do not occur with such frequency to a hospital physician, even in private practice, as that I may hope

to bring together a sufficient number of facts to lay them before you. The fact has already been noticed, and if you will invite others who have more opportunities of special observation to try the experiment, and give you *short extracts* of cases bearing on the subject, with the names of the observers, I am sure you will confer a favour on the profession, and oblige—Your obedient servant,

Sussex-gardens, July, 1854.

R. H. GOOLDEN.

MEDICAL JURISPRUDENCE.—EXTRAORDINARY CASE.

To the Editor of THE LANCET.

SIR,—I take the liberty of forwarding to you the particulars of a case, medically interesting, inasmuch as on anatomical and ratiocinative testimony must rest the conclusions which will hereafter be arrived at.

On the 28th of July last, a body was seen drifting down the river Thames, near the opposite shore to Thames Ditton. The heels rested on the ground, the head and hands were barely beneath the surface. The body was highly emphysematous, and was that of a Jewish-looking man, apparently forty or forty-five years of age. When hauled into a punt, his trowsers were found to be supported by a belt, his coat unbuttoned, no waistcoat, but a Guernsey under-vest, *carefully drawn down*, leaving bare a small circle of abdomen between its inferior margin and the waistband of the trowsers. On raising the Guernsey, I discovered a large opening into the thorax on the left side, extending laterally about two inches and a half, and vertically about one inch and three quarters.

On Wednesday, the 30th, an inquest was commenced at the Mitre Hotel, Hampton Court, whither the body had been removed, and I was requested by the coroner, (T. Wakley, Esq.,) to make a post-mortem examination. Confining myself to the autopsical evidence, and only alluding *en passant* to an alleged liaison of his wife during the deceased man's four years' absence in Australia, and cheques, the "first of exchange," (the second having been paid,) to the amount of £590, of the New South Wales Bank, being found in his pockets, I shall merely observe that the above-named opening, on putting the edges of the integuments in apposition, showed three several incised wounds cutting obliquely downwards,—twice severing the sixth rib, and thrice cutting through the seventh rib, while the eighth rib had the periosteum sliced off two inches of its anterior surface by a distinct act of incision. The cuts through the sixth and seventh ribs and on the eight were so clean as to excite the astonishment of myself and Dr. Agnis, 3rd Light Dragoons, who kindly assisted me in the necropsy, at the power which must have been employed in the commission of the act, and the nature of the weapon which had been used. Proceeding therefore with our investigation, we traced three distinct incisions through the left lung, and three still more distinct incisions into the body of the heart. The posterior wall of the left ventricle had

an oblique wound of one inch, three-eighths. The anterior wall of the same ventricle, one of an inch, seven-eighths. The third wound laying open, into one common cavity, the whole of the left ventricle and part of the right,—the cut running from the left auricle downwards to the apex. The heart was anæmic,—the lungs nearly so,—fluid blood had traversed and coagulated over the chest,—the diaphragm was much stained with arterial blood,—it presented a short cut on its left portion, which had penetrated the left lobe of the liver, permitting or rather causing some blood to flow about the abdominal cavity, and especially to surround the oesophageal extremity of the stomach. The stomach was empty,—abdominal and thoracic viscera were healthy,—the whole being in a most anæmic condition.

The inquest opened on the 30th July was adjourned till that day fortnight, for the purpose of furthering the ends of justice and applying thereto the aid of medical science in directing the arms of criminal law to the development of the cause of death, and consecutively to the elucidation of guilt, if guilt there be.

Had this man been consigned to the grave by the mellifluous verdict of a "found drowned" jury, under the directions of a coroner, ignorant of anatomy and the physiological circumstances of death, or rather I should say pathological delininations, it is not too much to say that the plunges made into this man's heart would have been eternal mundane secrets to justice and society.

I am, Sir, yours most faithfully,
C. B. GARRETT, M.D.

Thames Ditton, August, 1856.

ABSTRACT OF THE REPORT OF THE TWENTY-FOURTH ANNIVERSARY MEETING OF THE PROVINCIAL MEDICAL AND SURGICAL ASSOCIATION.

HELD AT BIRMINGHAM, JULY 29TH, 1856.

THE Provincial (or British) Medical and Surgical Association held their twenty-fourth annual meeting at their own proper head-quarters, and the capital of the midland counties of England—Birmingham. The place fixed for the meeting—the Governor's Hall of King Edward's Grammar School—was a locality happily chosen; it is a noble apartment, well lighted, with an antique-looking and lofty roof, and centrally situated, close to the railway station, in the very heart of the town.

DR. BELL SALTER read the Address in Medicine, which was

A SUMMARY OF OUR PRESENT KNOWLEDGE OF THE LAWS OF EPIDEMICS.

He said that the lower animals and plants were subject to epidemic diseases, some of which had been found consentaneous with others prevailing amongst mankind. Wild birds were often known to be scarce or absent from places where human epidemics prevailed; and their return was a sign

that the intensity of the disease had diminished. Flies are often few at periods of epidemics, though at other times the presence of large numbers of insects is coincident with the disease; and the multitude of some, as locusts, is an active cause of certain maladies. The speaker proceeded to classify epidemic diseases, and indicated the years of some of their most serious attacks. Of the older epidemics, the plague and the yellow fever were the principal ones remaining; but the former, for the most part, ever since the fearful plague of London, in 1665, had been confined to parts of Asia and Africa bordering the Mediterranean. Amongst epidemics mentioned in history, but now extinct (?), is the sweating sickness, which, in some cases, had been known to carry off the patient in two hours: it first appeared in Europe in 1484; then prevailed from 1517 to 1528; and was last known in England in 1550; but in Denmark and Sweden, it had prevailed so late as 1710. The black-death, which first appeared in 1348, had, like cholera, arisen in the east, and spread westward; it appeared to have been a modification of plague in conjunction with pneumonia. Leprosy and chorea were epidemics of the thirteenth and fourteenth centuries; and the latter (like some manifestations which have within the last few years been observed in Germany and Sweden) had apparently a mental origin. Irregularity of the seasons had always attended the outbreak of an epidemic; and an extreme paucity of house flies had been noticed during the attacks of cholera in 1832 and 1849. The history of an epidemic outbreak was next described; and it was remarked, that the localities in which the first cases had appeared were those where the heaviest amount of mortality had been present to the last. The mortality from modern epidemics is however trifling, as compared with that caused by the old ones. Of these attacks by the sweating sickness, only one or two per cent. were accustomed to survive. Epidemics were then classified into local, latitudinal, and mundane. Amongst many other subjects, Dr. Bell Salter drew attention to the Report of the Board of Health on Cholera, and the proofs furnished by it that the production of that disease was intimately connected with impurities in the water supply; that little electricity had been manifested, and a total absence of ozone from the atmosphere during attacks of cholera; that the zymotic doctrine is more applicable to cholera than has been yet recognised; that epidemics are not affected by regulations of quarantine; and that intervals free from severe epidemics were the proper periods for making and carrying out arrangements to prevent them, which in times of pestilence are fraught with danger. He remarked that tontines have proved the value of human life to be one-fourth greater than in the century before the time of Pitt; that medical science had done much to contribute to this result; and that the more we were enabled to check the progress of minor epidemics, the less was the liability to others of a more severe description.

DR. RICHARDSON, in proposing a vote of thanks to Dr. Bell Salter for his Address, took occasion to

protest against the Board of Health having ignored the researches of a member of the Association—Dr. Snow, who was the first to draw attention to the fact, that the presence of discharges from cholera patients in water drank, and other means of contact, had caused the production of that disease. Dr. LANKESTER seconded the proposition, and supported the protest; as did Dr. BUDD, who made some severe strictures on the conduct of the Board of Health, not only for refusing due credit to Dr. Snow, but also for continuing to deny the propagation of the disease in question by contagion in certain cases.

Dr. LANKESTER, in the course of his remarks, said that he felt pride in belonging to a profession which, as proved by the Address they had heard, collected all sorts of information to avert the progress of epidemic diseases, although such a line of conduct is opposed to their pecuniary interests. He praised the institution of model lodging-houses; but he said it was not entirely true, as had been stated, that typhus had never appeared in those of London. Some cases had come under his own observation; in one case, a whole family lodging in one of those houses having been attacked, of whom two died. It was not sufficient to build the houses, and then leave them without adequate watchfulness to prevent the spread of disease.

Dr. STEWART remarked, that it was erroneous to state that the sweating sickness was entirely extinct. Some years ago it had broken out in France; and we could not be sure that there might not be another severe outburst of this disease.

It was proposed, seconded, and carried, that the foregoing Address be printed (and similar motions were carried with respect to nearly all the other papers read at the meeting). Dr. Tunstall and other members wished to have them published in the "Transactions," which they desired should be recommenced, preferring that publication for the purpose to a weekly journal. The Association did not, however, vote a resumption of the "Transactions."

Mr. HARE reported a case of Spinal Curvature, and recovery, illustrated by casts and a drawing.

Mr. PROPERT very energetically gave his testimony in favour of Mr. Hare's treatment in cases which he had witnessed.

Dr. BUDD, of Bristol, detailed a most remarkable

CASE OF A CHILD WITH TWO HEADS,

five weeks old, and, at the time of the meeting, still *living* in Bristol. The mother was attended in her confinement by Mr. M'Pherson, of that city. The child was the second of a family, the first of which was perfectly well formed; and no known cause for this monstrosity had existed. The case was illustrated with the aid of a photographic engraving. The first head was naturally formed; the second head emerged from it, at the temporal region, on the right side. It was sessile; or, in other words, the two heads had but one neck. The lower jaw of the second, or supplementary head, was rudi-

mentary, or incomplete; but this head had a mouth and lips, a nose (which was more largely developed than the natural one), eyes, which stood out as globes, uncovered by eyelids, and a brain. The roof of the skull was incomplete; and the brain was covered only by a membrane, which for some time after birth had been transparent, and permitted the division of the hemispheres and the convolutions to be seen through it. This membrane had progressively become opaque, as had the cornea. Shortly after birth, it had been observed that the pupils were well formed, and the iris (in the eyes of the second head) was regular and natural; but it had not been noticed whether the latter was obedient to the stimulus of light, and observation on this was now impossible, owing to the increasing opacity of the cornea. The left ear of the second head is in a state of fusion with the right ear of the first, or natural head, and it is difficult to state if all parts of these two ears exist. A connexion of the mouth and nostrils of the second head with those passages in the head-proper has not been clearly made out; a regurgitation of milk through them is said to have taken place, but this is doubtful. The child is not likely to survive, for the eyes and hemispheres of the brain in the second head are perishing very fast, and will probably become a source of poison to the system. Except in having a double head, the form of the child is comely. A remarkable fact is, that perfectly consensual action takes place between the movements of the natural and of the supplementary face; in the act of sucking, the lips of both heads move; in crying, the muscles of both are put into the same action; in sneezing with one head the face of the other is congested, and the child yawns with both mouths at the same time. It is difficult to exaggerate the importance of this phenomenon as connected with reflex and emotional action. In sleep the closing of the eyes of the second head is lost, from the want of eyelids; but I am satisfied (said Dr. Budd) that when the natural head sleeps, the other sleeps too, as it then has the passive expression and relaxation of sleep, which ceases when the other head awakes; and when the natural head is asleep, you can move or touch the lips of the second head without the notice of the child. We have been unable to ascertain whether consensual motions may originate in either head; emotional acts originating in the nervous centre are seen in both. It is difficult to excite reflex acts in the natural head through impressions made on the second one, but easy to excite them in the natural head so as to affect the second. Whatever movement occurs in the eyes of the second head occurs in those of the first, and movements of sucking can be induced in the mouth of the natural head by sucking with the other mouth. Only two analogous cases appear to be recorded. One is that of Rita Christina, the two-headed body described and figured by M. Serres ("Anat. Pathologique"), and another is treated of in the "Cyclopædia of Anatomy;" but both differ from the present case in this, that in each there were two

nervous systems united at a lower point in the body, whereas in this it is doubtful whether the junction is at, or below the medulla oblongata. Dr. Budd briefly canvassed the question whether this monstrosity had resulted from a fusion of two germs in early uterine life, or whether it was an example of vegetative repetition analogous to the instances of six fingers or toes, and similar malformations. He said he had satisfied himself that its origin was of the first-mentioned kind, because vegetative repetition only affected subordinate parts, such as limbs, and not organs of a high and noble character, as the brain and nervous system. He feared that the opportunity to inspect the internal anatomy of the subject would be lost to the profession after the death of the child. What could be done to prevent such a loss to physiology? A short Act of Parliament had before now been passed for less important and useful objects.

In reply to a question asked, Dr. Budd stated that he believed that the tongue of the second head was very rudimentary.

Dr. SIMSON read a paper "On the Form of the Chest in Health and Disease," illustrated by photographs, and in which he contrasted the differences of external appearance presented in phthisis and in emphysema, in which a state existed that was completely different. Amongst other conclusions at which he arrived were: that dorsal spinal curvature was produced during phthisis by a contraction of the chest by the consolidation of the lung; that the palpitation of the heart is only apparently, and not really, stronger in phthisis, but only more perceptible from the heart being uncovered in consequence of the shrinking of the lung; and that if the heart be displaced and pushed towards the side of the sunken lung, the sign is favourable, as proving that the other lung was exercising a compensating power. He was followed by

Dr. EDWARD SMITH, who read a highly interesting paper "On the Nature and Principles of the Treatment of Phthisis;" in which he stated that the quantity of food taken during the disease was not less than in health; that it was duly appropriated; that there was no evidence of indigestion being connected essentially with phthisis; that the weight of the fæces and other excretions was less than in health, as he had found by examination of a number of cases at the Brompton Hospital. Dr. Hutchinson's researches and spirometer had shown that in phthisis the respiration was less, and that the first condition manifested was a deficient action of the air-cells. It had not been proved that phthisis is a blood disease. A principle of treatment should be to promote increased respiration, which was found to be more free in the consumptive in the latter part of the day. Wine and spirits lessen the amount of respiration, and should only be taken with food: the great injury caused by dram-drinking in the morning was pointed out. Some very ingenious and elaborate diagrams were exhibited by Dr. Smith to show that sleep promotes the increase of respiration, especially during the first hour, but that the amount

of respiration afterwards suddenly falls, and then again rises. The promotion of sleep, cold bathing (not too prolonged), the use of animal food, tea, and the breathing of cold air,—which, he said, increases respiration and diminishes pulsation,—were among the chief means of treatment recommended by the author.

Some questions were asked by Dr. RICHARDSON, one being as to what Dr. Smith considered was the channel of the loss in phthisis, but nothing positive was announced by Dr. Smith on this head.

Mr. JONES, of Derby, read some cases illustrative of the advantages of a new Uterine Truss which he exhibited.

Dr. DAVEY, of Bristol, followed, "On Moral Idiocy." He described idiocy as of two kinds—intellectual and moral; the former involving the understanding, the latter the affections and conscientious emotions of our nature. Both kinds of idiocy were the result, he said, of congenital defect, and, in that case, were identical in their origin and nature. There was this strong difference, however, between the two: the first-named was very generally recognised, but the second was scarcely at all heeded; and hence it was shown that the subject of one form of cerebral defect or disorder was held to be a fitting object for our care and protection, whilst the sufferer from the other was altogether neglected. His subject had chief reference to the case of Dove—a man who, he considered, was, in point of morals, on a footing with the Hottentot or native Australian,—as one "who could not hear the voice of conscience." He narrated two other cases which had occurred in his own practice; attributed moral idiocy to an arrest of development in some portions of the brain; and asked if the British Medical Association was to have a voice or not in consigning moral idiots to death, or in saving them from the gallows? His leaning appeared to be strongly towards the latter alternative in the case of Dove; but it must be stated that his appeal to the Association on this matter met with no response.

In the absence of Mr. Erasmus Wilson, Mr. PYE CHAVASSE read the paper on "Infantile Eczema," for the treatment of which Mr. Wilson recommended arsenical preparations, iron, calomel, and cod-liver oil as internal remedies, and benzoated oxide of zinc as an external application.

Mr. SMITH, of Southam, assisted by Mr. JONES, of Derby, had been in attendance in another room to explain the principles of Self-supporting Dispensaries, of which the former gentleman has been so long the apostle. It was urged by Mr. Smith in behalf of these dispensaries, that—1. They necessarily extinguish progressively the sale of quack and patent medicines. 2. They superseded the chemists' counter-practice. 3. They offer a fair and open field for the test of any new view or remedy that science may discover or craft appropriate. 4. They offer an open field to young practitioners for practice without purchase, and afford the best test of medical skill, and they establish a higher estimate of the medical character. 5. They furnish a means of payment for labour,

skill, and time, and they supersede the payment for drugs—the most absurd plan possible, excepting for fools and knaves.” It was stated by Mr. Smith that these dispensaries are in full and thriving operation at Northampton and elsewhere.

Thanks were unanimously awarded to the Bailiff and Governors of King Edward's School for their liberality in offering to the Association the use of that excellent place of meeting; and these thanks were responded to by Dr. James Johnstone, one of the governors. Thanks were voted to the Mayor and Corporation for the use of the Town Hall, and to the Chairman and Board of the General Hospital, for that of the fine organ, as also to Sir Charles Hastings, the founder of the Association, to those gentlemen who had thrown open their manufacturing establishments to the inspection of the members, and to the gentlemen who had made the arrangements for the meeting. Finally, in proposing a vote of thanks to Dr. James Johnstone, the President, Sir C. Hastings reminded his hearers that Dr. Johnstone's father, after having been in practice for half a century, had been the first elected President of the Association at its first anniversary in this town twenty-two years ago. The son now presided at a meeting when the Association, under a new name, was about to undergo a new development, and he hoped that that son would live to witness such another period, and such a prosperity to their institution as his father never could have contemplated. Dr. Johnstone feelingly replied, and the meeting closed.

WHAT EVIDENCE HAVE WE TO SHOW THAT STRYCHNIA AND OTHER ALKALOIDS ARE NOT LIABLE TO SUFFER DECOMPOSITION IN THE HUMAN BODY?

To the Editor of THE LANCET.

SIR,—The late trial of Wm. Palmer having caused the publication of a great deal of conflicting evidence relating to the decomposition of strychnia, allow me to make a few observations upon that important subject. There is not a member of the medical profession who may not be called upon, sooner or later, to give evidence before a jury of his country in some important case of organic poisoning; it is therefore incumbent upon us to be exceedingly cautious in publishing conclusions, drawn from experiments on animals, when the deductions cannot be confirmed by repeating the experiments on man. There has not been a sufficient number of cases of poisoning by strychnia to determine the point in question; how, then, can we go before judge and jury, upon oath, and state that strychnia is never decomposed in the human body? If the poison does *not* suffer decomposition in animals, we are not therefore to conclude that it may not be decomposed in man. Moreover, it is possible that the poison may suffer decomposition in one individual and not in another. For instance, the state of the constitution, digestive functions, diet, &c., differ greatly in different persons, and still greater in the distinction between man and

animals. If prussic acid, morphia, and meconic acid undergo decomposition in the stomach, or when absorbed into the blood, may not strychnia undergo metamorphosis? If we detect the presence of a poison in man or animals after death, we require to make a quantitative analysis, in order to prove that *no* decomposition has taken place. It would be impossible to extract the whole of a vegetable poison after death; owing to its diffusion through the system; hence the impracticability of proving whether a poison is decomposed. It has been shown by Dr. Letheby and others, that strychnia is capable of resisting the decomposition of animal matter, and even sulphuric acid; but what changes may take place between the poison and the various articles of diet in the stomach of man is a point not yet determined, and *no experiments on animals* will satisfactorily clear up the question, for reasons above assigned.

The human subject and animals appear to agree pretty closely in the phenomena produced on each by the action of organic poisons, but the action of prussic acid on man differs a little from the effects produced on the dog, for in the latter we have the piercing cry, which is absent in the former. The diagnosis of organic poisoning during life is easier than the detection of the poison after death. In the case of Cook, the poison was not detected, but the medical and circumstantial evidence was sufficient for conviction. The finding of a weapon with which a murder has been committed is by no means necessary to conviction; if we were to place the detection of a poison after death in the same position, chemical evidence would become inferior to physiological and pathological in point of value, as happened in the trial of Palmer. But the sciences of medicine and toxicology are advancing with equal rapidity, and the ends of justice are not so liable to be frustrated when a link is wanting in either the chemical or medical evidence. The presence of disease, however, may sometimes interfere with the correct diagnosis of a poison, or a compound poison may be administered for the purpose of masking symptoms. For instance, the first tetanic attack which Cook had on the Monday night was supposed to have been caused by a small quantity of strychnia; but I am of opinion that a large quantity was given, or at least, sufficient to cause death, and that an antidote was *unintentionally* administered by Palmer, which saved the life of Cook for that night. But if medicine had been given to allay pain, or, rather, to mask symptoms, what effect would be produced by an overdose of opium, prussic acid, or tartarized antimony after strychnia? Either of these would tend to arrest the spasm caused by strychnia if administered in sufficient quantity, and probably act as an antidote to the poison. It will be remembered that Palmer gave Cook something which produced vomiting, and afterwards composed him for the night. It is, therefore, an important question, whether Cook was saved temporarily by some antidote, or whether the quantity of strychnia was too small to cause death; the latter, I believe, is the general opinion, but from this I differ. The

attack was too severe to have been caused by a small dose of strychnia, and the symptoms were too well marked to be attributable to any other poison, and if the poison were not removed by vomiting, its further action upon the system was arrested by a powerful sedative.

As relates to the detection of strychnia, much conflicting evidence has been published. The old process has been condemned, and new processes have been brought forward as being more delicate. One of these consists in the use of chloroform as a solvent, and Mr. Rodgers and Mr. Girdwood, are of opinion that the process used by Dr. Taylor is not to be trusted for the extraction of strychnia in a state of purity from the blood, organs, or tissues, (except when present in very large quantity. *THE LANCET*, June.) Dr. Letheby has likewise given a process in *THE LANCET*, July, in which he recommends ether as the solvent for strychnia, and states "That chloroform is the best solvent, *especially when the solution contains a large amount of strychnia*; but this is not often the case." From this statement I infer that although chloroform is the best solvent, it is not applicable when the strychnia exists in small quantity, and ether in that case should be used; and thus, if I correctly understand his meaning, he places the chloroform process in the same position, in *point of delicacy*, as the process used by Dr. Taylor. I shall not attempt to prove whether the ether or chloroform process should be used in searching for strychnia, *when the quantity is small*, but it would be advisable to set the matter at rest, otherwise it will lead, in some other criminal case, to further conflicting evidence, which should be avoided if possible.

I am, Sir, your obedient servant,

H. OSBORN, L.R.C.P.

Southampton, August, 1856.

WHERE IS HUNTER'S STATUE?

To the Editor of THE LANCET.

SIR,—A short time since, on visiting Westminster Abbey, and asking the above question, I received the following answer:—"Not here; we don't admit doctors, unless they're poets, or LL.D.'s, or write history; we don't recognise 'em, Sir."

This statement was strictly correct. Not one nook or cranny of this vast and ancient pile is given up to sanctifying the memories of those who died in harness at their noble task of assuaging the pangs of disease, investigating its phenomena, and warring with its dangers; of hunting out filth, ignorance, and debauchery from their ancient haunts.

Such have been the labours of medicine; such is her reward! The genius of Westminster Abbey stretches out her arms to guard the names of Parr and Johnson, of Gray and Camden; but calmly folds them on her breast when asked to welcome the shades of Jenner and Hunter.

Of the former it may safely be said, that he was the greatest benefactor to the human race that

ever drew breath, and the good effected by the accumulated labours of many of the most zealous in the race of humanity is transcended by that resulting from his unaided efforts. Not the least amongst his triumphs is that he taught the useful lesson of self-reliance; that he showed those who consider the way to improvement barred by the want of libraries and museums, that these are only advantageous aids; and that the greatest and loftiest problems may be worked out in the silent obscurity of village life.

But what Jenner did for humanity, John Hunter did for medicine, and he has consequently the first claim on our veneration. His labours in the cause of truth are so vast, that the recital reads more like a fable than a biography. They so far surpass those of even the greatest names in the exact sciences, that a century hence men will hesitate to believe them; and startling as the assertion may seem, a fair comparison of their lives will show that the achievements of Hunter are in no way overshadowed by the gigantic toils of the first Napoleon.

It is quite true that he is now honoured in his peculiar domain as no man was ever honoured before; that he is now recognised as the presiding genius of surgery; that a long line of distinguished men have emulated each other in unfolding his greatness, and that the spoils of science are daily accumulating around the trophies of his genius. But this is not enough; the wide world ought to know his fame; history ought to commemorate his era like that of Newton and Bacon. Let it be our task to see that he now takes a foremost place amongst the most honoured names of his adopted country.

I propose, then, that a subscription-list should be opened, to purchase a statue, and to pay the fees (which are rather large) for its admission into Westminster Abbey; that an opportunity should be given to his countrymen to aid in the good work; and that the public should be solicited by the surgeons in person, with the twofold object of securing a monument worthy of his fame, and of telling to every man who and what John Hunter was.

I remain, Sir, yours, &c.,

AN OLD CORRESPONDENT.

August, 1856.

THE JACKSONIAN SANATORIUM.

THIS splendid establishment, situated at Fortisgreen, near Highgate, which has been in process of construction for some months past, was formally opened on Tuesday evening, with an inaugural dinner to several of the leading metropolitan members of the medical profession. Dr. Little, of the London Hospital, presided. Amongst the gentlemen present we recognised the following:—Mr. Fergusson, F.R.S., Mr. Ranald Martin, F.R.S., Mr. Adama, Mr. Barnard Holt, Mr. Erichsen, Mr. Coulson, Mr. Solly, F.R.S., Mr. Critchett, Mr. Erasmus Wilson, F.R.S., Mr. Richardson, Mr.

Thomas Wakley, jun., Dr. Tyler Smith, Dr. H. Bennet, Dr. Arthur Hassall, Dr. J. G. Wakley, Mr. T. Carr Jackson, Dr. Wynter, Dr. Semple, Sir J. Eyre, Dr. Todd, Dr. Forbes Winslow, Dr. Billing, Dr. Cape, Mr. Hancock. Several other gentlemen were prevented attending in consequence of their absence from London, but expressed their approval of the objects of the institution. After the usual loyal and medical toasts, which were responded to respectively by Mr. Ranald Martin, Sir J. Eyre, Mr. Fergusson, and Dr. Semple,—

The CHAIRMAN rose and proposed, "Prosperity to the New Sanatorium," coupling with it the name of its enterprising founder, Mr. Jackson. He begged their kind consideration while he explained to them the nature of the novel institution which they were met that day to inaugurate. The idea of the establishment originated with Mr. Jackson, a gentleman of fortune. It is intended to supply a great public want, and Mr. Jackson had, by a large expenditure, brought his philanthropic object to that state of perfection to which they could all bear witness that day. It was admitted, that the wealthier classes of society, owing to the defective arrangements in their establishments, and the inexperience of their domestics in the requirements of the sick-room, often during the hours of affliction, did not receive the help which was so generously accorded by a liberal public to even the destitute persons received into our public hospitals. It was the object of the founder to combine under one roof all possible public and private appliances for the treatment of the sick—indeed all that could be found in the largest hospitals, with every requisite of a first-class mansion, and the most perfect modern hotel. The management was to be upon the most liberal scale. Any medical practitioner could place a patient to reside there, where would be found in one establishment all the therapeutic and sanitary aid necessary for carrying out measures for the restoration of health. The practitioners now present could testify to the great want of such an establishment, especially in convalescent cases. The learned chairman discussed at considerable length the nature of the undertaking; and concluded by stating, that he was given to understand the Sanatorium would have a resident medical officer always on the spot, a carefully appointed dispensary, experienced nurses and attendants, a most extensive suite of baths, together with horses and carriages to convey the patients to their medical practitioners in town. The great additional advantages—healthy situation, the pure air, for which this suburb of London is so reputed, and its easy distance from London—seemed to insure its success.

Mr. JACKSON trusted that this institution would receive the support of the entire profession. He acknowledged with feelings of satisfaction the honour he had received that day, by the presence of so many distinguished gentlemen at the opening of the Sanatorium.

Sir JAMES EYRE proposed the health of the Chairman, after which the company separated,

apparently much delighted with the entertainment they had received.

News Items, Medical Facts, &c.

PUBLIC VEHICLES AND CONTAGIOUS DISEASES.—An important communication has been forwarded to the various Metropolitan parishes, by the committee of the small-pox and Vaccination Hospital, directing the special attention of the parochial authorities to the necessity of procuring proper vehicles for the transmission of patients suffering from small-pox, fever, and other contagious diseases, in place of the present system of using cabs and public conveyances of a like description. Several parishes have accordingly adopted the recommendation, by having proper ambulances built for the conveyance of such patients. The proposed sanitary regulation is supposed to have emanated from the Home Office, in consequence of the recent deputations to Sir George Grey on the subject.

THE FRENCH HOSPITALS IN THE EAST.—The great hospital at Pera has recently been closed, owing to the return to France of a portion of the French army. There were at one time as many as 2000 patients in this hospital, and no less than 27,500 were received during the two months it remained open. Out of this number, 13,000 were sent to France or to other hospitals in a convalescent state. The *Gazette Médicale de Paris*, in recording these figures, does not say whether the remaining 14,500 died; such, however, might perhaps be the inference. The total number of days' treatment was 633,985.

ABBÉ CARTON'S INSTITUTION FOR DEAF AND DUMB.—There is one very curious and, at the same time, very sad case here, that of a young girl who is blind, deaf, and dumb, so that she has only one sense left, that of the touch, by which it is possible to communicate with her; and yet, by means of this alone, they have contrived to teach her to read, to write, to cypher, and to make lace. She is much attached to the sisters, and recognizes them all as soon as she touches them; but she is devoted to the Abbé, and seems instinctively aware of his presence the moment he enters the room. A book printed in raised letters was put before her; she passed her fingers rapidly over the page; and a frame which slides being brought in its place, with a box of type distributed into partitions, she immediately spelt out the passage she had read. When she reached the end of the second line, she, by some accident, mistook the space between the two first lines, for that destined to hold the third, but before she reached the end of the first word she discovered her error, and corrected it. I should imagine the education of this afflicted girl to be one of the greatest triumphs ever achieved by the benefactors of suffering humanity.—*Flemish Interiors.*

THE LANCET.

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Literature and News.

MR. WAKLEY, M.P., EDITOR.

J. HENRY BENNET, M.D., J. WAKLEY, JR., SUB-EDITORS.

IN TWO VOLUMES ANNUALLY.

VOL. II.

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No. 4.

A Course of Lectures ON THE THEORY AND PRACTICE OF OBSTETRICS.

By W. TYLER SMITH, M.D.,

PHYSICIAN-ACCOCHEUR TO ST. MARY'S HOSPITAL, AND LEC-
TURER ON MIDWIFERY AND THE DISEASES OF WOMEN IN
ST. MARY'S HOSPITAL MEDICAL SCHOOL.

LECTURE XXIV.

THE MANAGEMENT OF NATURAL LABOUR.

GENTLEMEN,—The first summons to a lying-in woman should always be promptly obeyed. Some women alarm themselves before labour has really commenced, or when their labours are going on slowly; others defer sending for the accoucheur until the labour is far advanced, or parturition may take place so rapidly, that the medical man, even when using the greatest promptitude, may be too late, or arrive only just in time to afford his assistance. We should always act in practice as though our cases were those of the latter kind, on the ground that it is much better to be many times too soon than once too late. If we are called unnecessarily early, we can leave the patient confidently for a time; but the attendant is sure to obtain blame should anything go wrong before his arrival. Another rule for the accoucheur should be, that of never leaving one case for another, after he has commenced his attendance upon the first, as he is legally and morally responsible, in the event of accident, for the conduct of any case the actual attendance upon which he has undertaken.

The matters required by the accoucheur during the conduct of a labour are, a case containing a blunt-pointed scissors, a silver or gum-elastic female catheter, laudanum, sal volatile, and ergot

of rye. The nurse should provide thread for tying the funis, an abdominal bandage, and a supply of napkins and towels, and hot and cold water.

At the first visit to a patient in whom labour has apparently commenced, an examination should, if possible, be made. This should not be proposed abruptly, particularly when the accoucheur is not well known to his patient. Inquiries may be made about the state of the bowels and bladder, the nature of former labours in multiparous cases, and other points upon which it may be well to have information. The accoucheur should not, however, on any account, leave the patient without ascertaining the nature of the case under his management. It may happen that no pregnancy exists; or the case may be one of arm or funis presentation, requiring early interference, with a view to the safety of the mother or the foetus. But in the most natural cases, it is always a comfort and ground of confidence to the patient, and a satisfaction to the accoucheur, to know that everything is "Right," as the phrase is, when the head presents.

The usual obstetric position in this country is that in which the lying-in woman is placed on her left side, with her head upon a pillow, and the thighs and legs flexed. She should be placed with her back towards the edge of the right side of the bed. In the stage of dilatation, before the os uteri has opened, and when the pains are not immoderate, the patient may be allowed to choose her own posture, except during an examination. She may walk about, and occupy herself with the preparations for the coming infant, or other casual matters. The pains may be borne in a sitting or standing position, as may seem most easy. No voluntary efforts or straining at this time should be permitted. The more freedom we allow, of course in moderation, to the patient during this stage, the less fatigue she will feel during the succeeding stages of labour. When the stages of propulsion are proceeding, she should be advised to lie upon her left side in the manner already

pointed out. This seems to be the most convenient position, and the one assumed by women in a state of nature, or in cases where women are delivered without assistance. But, even after the stage of dilatation has passed, no great constraint should be exercised. If the labour be long, women become cramped and sore from continuing several hours in the same position, and the pressure exerted by the fœtus is more distressing than when occasional change of posture is allowed. Amongst poor women in this country, the usual dress is worn until the completion of labour. With the rich, the custom is either to wear a dressing-gown during the stage of dilatation, or to remain in bed during the whole of labour. The bed should be prepared by the nurse with a drawn sheet, and a leather or piece of india-rubber sheeting, to defend it from the discharges.

In "Taking a pain," as it is termed, the accoucheur sits or stands by the side of the bed, the patient's back being towards him. This is one advantage in the position on the left side, as it enables the attendant to make the necessary manipulations while her face is turned away from him. With an expert and careful nurse, the patient will be placed on her side, and the clothes so arranged that a little fold of the chemise or night-dress will be brought to the edge of the bed, along which the accoucheur can introduce his hand without impediment until it reaches the vulva. In other cases, the dress may be wrapped round the legs, and the attendant has to disentangle it before he can make the necessary examination. The position of the hips are obvious, and the better plan for the student is to introduce the right hand between or at the back of the heels, and pass it up towards the nates. The posterior fourchette should be felt for, the vulva separated by the two forefingers or the finger and thumb, and the forefinger introduced along the vagina in the direction of the axis of the pelvic outlet. The experienced accoucheur will have little difficulty in passing his hand straight to the vulva without any such precautions. Guiding the finger along the vagina, the os uteri is felt, in the early part of labour, pointing towards the upper part of the sacrum, and the presentation can be made out as described when treating of the mechanism of labour.

If the os uteri cannot be reached with the forefinger of the right hand, the two forefingers of the left hand should be introduced, as they can be passed higher than the forefinger of the right hand. Some distinguished obstetricians always use the second finger of the right hand, because of its length; others, the two first fingers of the same hand, with a view to trying the dilatability of the os uteri and vagina. As a rule, no opinion respecting the presentation should be given unless the finger can be passed within the os uteri, and the presenting part felt, either by itself or through the membranes. If the young accoucheur contents himself with feeling the presenting part through the anterior wall of the cervix uteri, without getting within the os, he may sometimes mistake the back or shoulder for the head, and have

to make some awkward explanations to the patient or those around in case of such an error. Besides ascertaining the exact presentation, we acquire by the first examination a knowledge of the state of the os uteri, the extent of its dilatation, its dilatability, the condition of the vagina and perinæum as regards sensibility and distensibility, the amount of lubricating secretion in the passages, the state of the rectum as regards fullness or emptiness, the capacity of the pelvis, and some general idea of the size and state of ossification of the fœtal head, the tumour of the scalp, the rupture or integrity of the membranes, the quantity of liquor amnii, the height of the presenting part in the pelvis, &c. In all examinations, the fingers used should be smeared with cold cream, olive oil, or glycerine. As a general rule, the forefinger is the one most conveniently used by the accoucheur, but no representation which I have seen accurately portrays the mode in which it is used in an examination. In an examination in the early part of labour, when the os uteri is high in the pelvis, the arm and wrist are rotated so that the palmar surface of the base of the finger comes almost in contact with the pubis, and the os uteri is explored with the radial and middle surface of the pulp of the finger. This is, I believe, accurately represented in the accompanying engraving. In examinations in the latter part of labour, when the os is dilated and the head low down, the finger may be used in almost any direction with equal ease.

When the student examines in his first case of labour, he commences an education of the sense of

FIG. 110.



Examination in the Stage of Dilatation.

touch, such as is neither necessary nor acquired in any other department of practice. In tactile examinations of other parts of the body, sight and touch, or sight, touch, and hearing, are combined; but in the examinations of the accoucheur, touch is exercised without any assistance from the other senses. The obstetrician who has by long prac-

tice acquired the *tactus eruditus* in perfection may almost be said to have the end of his finger armed with an eye, and he reads the varied conditions of the internal parts which are within reach as accurately as the blind scholar reads the raised type in which books for the blind are printed. Although the forefinger of the right hand is that generally used, and which seems capable of acquiring the highest tactile education, it is well to accustom ourselves to all the other fingers, in case of being disabled in the right hand by any accident, or in case of some unusual shape of the pelvis or soft parts.

We are commonly told to introduce the finger during a pain, and indeed the phrase, "Taking a pain," implies that we can at this time afford some assistance to the patient. Hence women more readily submit to examination when a pain is coming on than during the intervals. Formerly, when the principal objection in making an examination was to ascertain the strength and efficiency of the uterine contractions, it was better to examine during a pain than at any other time. But since the mechanism of labour has been better understood, and we require to ascertain the exact position of the head during its progress, it is necessary to examine in the intervals as well as during the presence of pains. If we introduce the finger while the uterus is contracting, we should be careful not to rupture the membranes prematurely, as they are tense and thin at this time. The presence of the amniotic bag, and, after the escape of the liquor amnii, the corrugation of the scalp, or increase in the caput succedaneum during the pains, prevent us from making out the relative position of the sutures as well as in the intervals between them. An examination, therefore, should always occupy a pain and part of an interval. Having ascertained the nature of the presentation, and the state of the parts within the vaginal canal, no other manual interference is required in natural cases, during the stage of dilatation, beyond an occasional examination, to ascertain the rate at which the labour is proceeding. We shall, however, be expected to give some idea as to the time when the delivery may be completed.

A labour is considered natural as regards time when it does not exceed twenty-four hours from the commencement of the dilatation of the os uteri to the completion of delivery. Primiparous women frequently, however, exceed this period, and multiparous women are commonly delivered in a much shorter space of time. The full dilatation of the os uteri is considered to occupy five or six hours, but in many cases it takes less, and in others more than this. The bony pelvis being normal and the pains natural, labour is quick in proportion as the os uteri and perineum are dilatable, and the vagina short and capacious; and tedious according to the rigidity of the os uteri and perineum and the length and contraction of the vagina. Sometimes one portion of the parturient canal is relaxed, and another contracted; under these circumstances, one part of the labour will be rapid and the other slow and tedious. It is only by experience, tact, and an appreciation of

all the circumstances which modify the progress of labour, that anything like certainty of prognosis of its duration can be acquired. In parts previously rigid, the disposition to dilate may be suddenly manifested; or the os uteri, after dilating favourably to a certain extent, may become immovable. As regards uterine contractions, we may have a sudden failure of active pains, or pains in cases which had been sluggish may become as suddenly energetic. It behoves, then, that the young practitioner should, as the rule, be guarded as an oracle in his vaticinations respecting the time of the termination of labour in any given case.

During the stage of propulsion, we may moderate and guide the pains by inducing the patient to cry out if the pains are excessively violent during the expiratory efforts, or to hold her breath, and add voluntary straining to the reflex actions of the respiratory muscles, if the pains are feeble. In thus managing the open or closed state of the glottis, we can always increase or diminish at will the force of the uterine and respiratory contractions. As a rule, the membranes are ruptured spontaneously at the commencement of this stage. We should be especially careful not to rupture them before full dilatation of the os, if we can avoid it. When the stage of propulsion is fully formed, we may generally rupture the bag with advantage, if it has not occurred. This may be done with the nail of the forefinger during the height of a pain. When the membranes are tough, several efforts during successive pains are necessary before the membranes can be broken, but no violence should be used. Sometimes cases are met with in primipara in which the quantity of liquor amnii is so small, that it does not, from its bulk, interfere with the uterine action, and in which the labour goes on so satisfactorily, that it is advisable not to rupture the membranes until the perineum is dilated and the head presents at the ostium vaginae. When the amount of fluid is large, it very much facilitates the progress of labour to evacuate it as soon as the os uteri is fully dilated. If the membranes are punctured, accidentally or intentionally, before the stage of dilatation is completed, it frequently happens that the os uteri, which had been dilating most favourably, becomes rigid and contracted, and labour is impeded for several hours. On the other hand, cases are occasionally met with in which the os is dilatable but the uterus inactive, and in which dilatation may be promoted by the evacuation of the liquor amnii; but these are exceptions to the general rule. There is another point in the management of the liquor amnii worthy of notice. It sometimes happens that the head is well engaged in the pelvis before the liquor amnii begins to escape, and the proportions between the head and the parturient canal are so exact, that no water flows away in the intervals between the pains, or during the greater part of the pains themselves. The head and canal act exactly as a ball-valve, and no fluid can pass except at the acmé of a pain, when the force which should advance the head is expended in a slight dribbling of the waters.

Much time is often lost in this way, and the best mode of obviating the difficulty is to drain off the liquor amnii through a small gum-elastic catheter passed up by the side of the head. Nausea and vomiting are always beneficial during the progress of labour. In the stage of dilatation they aid in dilating the os uteri by the mechanical straining which occurs, the reflex sympathy between the cardia and the os uteri, and the general relaxing effects of sickness. In the stages of propulsion and expulsion, also, they increase the expulsive efforts, and relax the vagina and perinæum.

When the dilatation of the os uteri is very difficult, the margin of the os being hard, thin, and painful, nauseating doses of tartar emetic are very useful. Sometimes, when the tenderness and spasmodic rigidity of the os uteri is very great, an opiate will be of great service; or a moderate bleeding may be practised when the patient is of plethoric habit. I have tried belladonna, and a solution of atropine, in such cases, but without any good effects. During the stage of dilatation, and in the early part of the propulsive stage, the direction of the axis of the uterus should receive our attention. It should be as far as possible kept from anteversion, retroversion, or obliquity on either side, as these departures from its proper axis are certain to impede labour.

From time to time, during every labour, the condition of the fetal heart should be ascertained. This can easily be done by means of a flexible stethoscope, and the knowledge thus acquired may become of great use in labours apparently the most uncomplicated. The accoucheur should never forget that in a case of labour two lives are under his care, and that both require his attention. In no point is the excellence of the Dublin school of midwifery more shown than in the care with which its best teachers advise that auscultation of the fetal heart should be practised during the progress of labour.

The spirits of a lying-in woman should be kept up as much as possible, and this is best insured by cheerfulness and composure in those around her. The lying-in room should not be crowded, and from time to time the accoucheur should retire, so that no constraint may be placed upon the bowels or bladder of the patient. She should be allowed very nearly her usual diet, if her stomach can bear it.

In the stage of expulsion, the chief points are, the regulation of the expulsive forces, the direction of the head, and the preservation of the perinæum. In the latter part of labour, the glottis is to the parturient function almost what the safety-valve is to the steam-engine. By opening the glottis, as by directing the patient to cry out; or by closing it, as by directing her to hold her breath, we can, to a very great extent, regulate the expulsive efforts of the last and greatest stage of labour.

Many conflicting opinions prevail as to the propriety of supporting the perinæum. Some years ago I pointed out that pressure on the perinæum excited reflex contractions of the uterus—a point which is, I believe, now pretty generally recog-

nised; and I grounded upon this circumstance, and upon the facts that, in cases where pressure or support is most assiduously rendered, laceration sometimes occurs, while it rarely happens when women are delivered by themselves, an objection to the constant and sustained support to the perinæum during the latter part of labour. I believe that long-continued pressure tends to produce the accident, by increasing the expulsive pains and by damaging the perinæum itself. We read of cases in which the perinæum was supported for many hours in succession, which must always be unnecessary, since, if the pains are strong enough to threaten laceration, the expulsive stage could not last the time described. My advice with regard to the perinæum is, that the forefinger of the left hand should be kept upon the anterior margin of the perinæum during the last pains, and the right upon the head, with a view to ascertain the moment when the perinæum is distended to a dangerous extent with one hand, and at the same moment to retard the advance of the head with the other. The head should be pressed, in passing, close to the pubis, so as to strain the perinæum as little as possible. If we prevent the rapid passage of the head, we do more to prevent laceration than can be accomplished by the most careful pressure.

The knowledge of the mechanism of labour is of importance, not only with reference to diagnosis and the use of instruments, but in the management of natural labour. Sometimes, the descent of the head through the pelvis is retarded by the imperfect flexion of the head, or dip of the occiput. When the two fontanelles are on the same level, or nearly so, the occiput may be brought down by traction exerted with the finger on the ridge formed by the lambdoidal suture; by the use of the vectis; or by upward pressure on the frontal or anterior portion of the parietal bones. Rotation of the head may be assisted by gentle pressure upon the occiput, or the portion of the parietal bone, next to the ischial planes upon which the head is descending. At the time of the exit of the head, its extension, or the separation of the chin from the sternum, and the descent of the forehead and face over the sacral and perineal surfaces, may be aided by exerting slight pressure upwards upon the vertex, and traction downwards upon the frontal bone. As soon as the head is liberated, it should be ascertained if the cord be twisted round the neck, and the loop should as gently as possible be passed over the head in order to free the funis from pressure. The rotation of the shoulders in the reverse direction to that taken by the face so as to bring the shoulders into the opposite oblique direction to that occupied by the head, may be aided by placing one hand upon the back of the neck, and the other upon the sternum as the shoulders are passing. As the body of the child passes, it should be turned somewhat over the pubis. Those aids can only be afforded after a perfect knowledge of the mechanism of labour has been acquired, but they may then be made very considerably to facilitate the progress of delivery.

The old axiom, "Meddlesome midwifery is bad," has had great force in obstetric practice, but it is, perhaps, better adapted to ignorance or partial knowledge, than to a perfect comprehension of the mechanical and motor phenomena of natural labour. I have no doubt the time will come when these will be so well understood that the finger of the accoucheur will be in accordance with every change in the passage of the child during parturition. Proverbs are always one-sided. The phrase quoted has, no doubt, been useful in preventing improper interference, but it has also a tendency to the prevention of interference when this is both useful and necessary.

During the propulsive and expulsive stages it is usual for the patient to aid the respiratory efforts, by fixing her feet and pulling at a towel with the hands, or holding the hands of the nurse. This exertion must be encouraged or discouraged, according to the power of the pains. When the head is passing through the vulva, the right knee should be raised so as to facilitate its passage. Throughout the whole of labour the woman derives comfort from pressure exerted by the hand of an attendant upon the sacrum during the pains. I have not, on the present occasion, said anything respecting the use of chloroform in natural labour, as I propose to devote a special lecture to the subject of *Obstetric Anæsthesia*.

After the birth of the child, the umbilical cord requires to be tied. The ligatures should be formed of thread, doubled several times. It should be tied firmly about two inches and a half or three inches from the umbilicus, and a second ligature should be applied at a little distance from the first, towards the placenta. Considerable force must be used in tying the cord, in cases of a large funis, from the deposition of an unusual quantity of the gelatinous matter constituting the bulk of the cord. Otherwise, the vessels may not be compressed, and bleeding may occur. In cases of large cord, it is always well to look at the funis a short time after the application of the ligatures and division of the funis, to see that no hæmorrhage is going on. The second ligature is intended to prevent hæmorrhage from the divided cord in cases where there are twins with a single placenta, or where the vessels of two cords inoculate, as they sometimes do. In dividing the cord, a pair of blunt-pointed scissors should be used, and the division should never take place under the bed-clothes, as the penis, or fingers, or toes have been sometimes injured during the separation of the funis. The hand of the accoucheur should now be placed upon the abdomen to ascertain the existence or non-existence of twin-pregnancy. After the expulsion of the placenta, the abdomen should be again examined, to learn whether the uterus is contracted. It ought to be felt above the pubis, or at the pelvic brim, of the shape, and almost the hardness, of a cricket ball.

As soon as the child is born, the first attempts at respiration usually occur immediately, the first inspiratory movements being excited as a reflex action by the influence of cold upon the surface.

The diaphragm is the special muscle of inspiration; and this is the first to act in the establishment of respiration in the new-born infant, as it is the last to relinquish its functions in a case of death from asphyxia.

A short period of repose follows upon the birth of the child, but in the course of a few minutes uterine contractions are again felt. The placenta may have been detached by the pains which effected the delivery of the head and trunk, or it may now be separated from the uterus. When the pains recur at the time mentioned, gentle traction should be exerted upon the cord, the hand of the nurse being placed upon the abdomen, and exerting gentle downward pressure. If there should be no pain, the finger should be introduced into the vagina, and the stringy insertion of the cord into the placenta will generally be felt; or, if not, the fundus uteri should be irritated by the hand externally, so as to cause contraction. In extracting the placenta, slow and gentle traction only should be used, as by this means the whole of the membranes, and any coagula which may have formed, are likely to come away with the placenta. The cord should be drawn downwards by the left hand, the fore-finger of the right being placed upon the insertion of the cord, as it is here that laceration occurs, when it gives way. Of course, if the cord is breaking, the traction should cease, and the placenta ought to be drawn forth by the fingers. As a rule, the placenta should be examined, to be sure that no portion of it remains in utero. After the delivery of the placenta, a bandage should be applied to the abdomen, with a view to gentle compression of the uterus and the support of the vascular system of the mother, after the tension of the abdomen during pregnancy. No doubt, by forcible compression after parturition, injury may be done to the uterus; but I have known cases of mortal fainting occur in cases where no other cause of death could be assigned than the neglect of bandaging. I therefore recommend it. When the bandage has been applied, the mother is allowed to rest while the child is being dressed, when she is made comfortable by the nurse. The child should be put to the breast within a few hours after delivery, but should not suck frequently until the secretion of milk is established, otherwise the mother suffers more than is necessary from after-pains, particularly in multiparous cases.

LECTURE XXV.

MANAGEMENT OF THE PUERPERAL STATE.

GENTLEMEN,—In the puerperal state, the patient has to recover from the shock of labour itself, and to pass through the disordered conditions incident to the state of the uterine cavity and the walls of the uterus after parturition, and to the establishment of mammary secretion.

The influence of the shock of labour is visible in the lowered state of the pulse which obtains some hours after labour, the debility felt by the patient, and the intolerance of light, noise, and

other stimuli previously borne with ease. The shock itself depends on the exhaustion of the nervous system by the prolonged muscular efforts, the physical pain, the loss of blood during the separation and expulsion of the placenta, and the removal of the pressure exerted by the gravid uterus during the latter months upon the organs of the body. The influence of the shock of parturition is best relieved by an opiate when the labour has been severe, or natural sleep, quiet, a darkened room, and the prevention of all excitement as far as possible. If the patient be greatly exhausted by labour, a little stimulus may be administered after delivery, but with this exception, nothing but gruel, tea, and similar matters should be allowed during the first twelve hours.

After the completion of labour, the most important considerations respecting the child-bed patient, are those which relate to the internal surface of the uterus. When describing the gravid uterus, I dwelt upon the involution of the muscular structure of the organ after parturition, by the degeneration, disintegration, and removal of the large muscular fibres, and the substitution in their place of the rudimentary cell-fibres proper to the uterus in the unimpregnated state, so that it is not in this place necessary to refer further to the post-partum changes in the parietes of the organ.

If the portion of the internal surface of the uterus be examined within a few days after labour, it is found to be raised somewhat above the other parts of the uterus, because of the increased thickness of the organ in this situation, and the remains of the decidua serotina. The open mouths of the veins are still visible, and small pieces of coagula are hanging from them into the cavity of the uterus. Since the time of Harvey, who was one of the earliest to make the comparison, the state of this part of the uterus after parturition has often been likened to a stump after amputation, or a new-made wound. The comparison is only correct to a limited extent. The small, curling arteries and the veins of the uterus have certainly been divided in the separation of the placenta, but, except at these points, no structural lesion occurs. The portions of the internal surface between the arteries and veins are occupied by the remains of the decidua serotina, or that part of the developed uterine mucous membrane lying between the uterine parietes and the placenta. There is no formation of pus upon the surface from which the placenta has been removed, as in the healing of an ordinary wound. The portions of coagula hanging from the venous openings separate and are discharged, or remain to plug up the vessels, and the veins and arteries close by a progress of gradual contraction and obliteration, under the influence of the contracted uterus and the diminished supply of blood to the organ. What I mean to say is, that there is no evidence in healthy cases of any inflammatory action or suppuration at the placental site during the return of the uterus to the size of the unimpregnated state. Besides the coagula hanging from the mouths of the veins, coagula probably exist to some extent, in almost all cases,

within the cavity of the uterus, as the remains of the blood poured out during the act of the separation of the placenta or immediately afterwards. Having thus described the condition of that part of the internal surface of the uterus from which the placenta has been separated, we are now in a position to speak of the Lochia—a sanguinolent discharge from the vagina, which continues after labour for a time, varying from three or four days to a month, but which generally diminishes or disappears about ten or fifteen days after delivery.

The lochial discharge consists of sanguineous matter derived from the surface of the uterus at that portion to which the placenta has been attached, and of sanguineous *débris* formed in the breaking down and discharge of the whole of the uterine decidua. The breaking-down of the small coagula from the mouths of the uterine veins, and coagula found in the cavity of the uterus, furnish some of the discharge, but the greatest part is furnished from the decidual lining of the cavity of the body of the uterus. From the evidence of numerous preparations and specimens which I have examined, I am convinced that the whole of the decidua which does not come away with the placenta, loses its vitality, becomes broken down, and is discharged during the first week or two of the puerperal period. I have seen the whole of the internal surface of the uterus covered with the bloody exudation thus formed, and the uterus may be found in every stage of progress of throwing off the decidua, from the perfectly smooth internal uterus, from which the whole of the decidua has been detached, and the organ studded with patches of decidua, or completely covered with this membrane. I look upon this exfoliative shedding of the mucous membrane or uterine decidua, as in many respects analogous to the change which takes place in the uterine mucous membrane at the catamenial periods, and the lochial and menstrual discharges appear to be essentially the same, except that the lochial flow is more profuse than the menstrual. In animals, there is no lochial discharge, because the placental cotyledons, or that portion of the placenta which fulfils the function of the decidua in the human subject, are permanent. No doubt the basement or germinal portion of the uterine mucous membrane remains both after the catamenia and the lochia, and gives size to the formation of the new mucous membrane found after menstruation and parturition. The lochial discharge is found to possess a peculiar smell. At first it is of the colour of pure blood, mixed occasionally with coagula. It is discharged with the greatest readiness during the time of micturition and defecation, or while the uterus is contracting, as in after-pains. After a few days, the sanguineous character of the discharge diminishes, the flow becoming greenish and frequently having a disagreeable smell. It is now called the "green waters," and the next change is to a whitish secretion, which gradually ceases. The green colour is caused by the chemical action of the utero-vaginal secretions upon the diminished amount of blood-globules now present in the discharge.

It is of importance that the lochial discharge should be free. In the event of deficiency, friction of the abdomen should be practised, with a view to excite contraction of the uterus and the expulsion of any collections in its cavity. Warm water, or infusion of camomile flowers, should be injected into the vagina two or three times daily, and in cases where any mischief is apprehended, the cavity of the uterus itself may be washed out. After delivery, a warm napkin should be applied to the vulva. Napkins are worn during the whole continuance of the lochial flow, and the nurse should change them frequently. The change of the napkin promotes the lochial flow, besides being necessary to cleanliness, as the uterine discharges very speedily decompose, and become intensely disagreeable. I have sometimes been obliged to order a bag of animal charcoal, or a piece of prepared charcoal sheeting, to be placed in the bed to neutralise the lochial effluvia.

The After-Pains are the natural attendants upon the uterine contractions which occur after parturition. The uterus is usually felt in a state of persistent contraction; but from time to time this contraction is increased, and is attended by pain. After-pains increase in severity with every labour; so that primiparous women suffer little from this cause, while multiparous women are troubled with them in proportion to the number of children they have borne. They commence soon after labour, and in the worst cases last three or four days, being produced spontaneously, or by any reflex irritation, such as the draught in the mammae, the sucking of the child, taking food or drink into the stomach, and the action of the bowels or bladder. Within certain limits, these pains are very salutary, tending to the expulsion of irritating materials from the uterus, and the perfect involution of the organ, as the reduction of the organ to its proper size is called. Sometimes they occur violently immediately after the completion of delivery, when the finger should be passed into the vagina, and the os uteri examined, with a view to the removal of any coagula which may remain in the uterus and vagina. When no retention exists, but the pains are neuralgic in character, an opiate, and a warm linseed-meal poultice upon which a little laudanum has been sprinkled applied to the abdomen, afford great relief. I have sometimes found that an anodyne embrocation applied to the breasts is of service in relieving distressing after-pains. The sources of uterine irritation should be avoided as much as possible. When slow and long-continued, after-pains can never be neglected with impunity, as they sometimes run on to inflammatory disorder.

In most women there is some appearance of Milk in the breasts before the coming on of labour. The areola acquires its deepest shade during and immediately after parturition, and at this time in women of dark hair and complexion, an almost black zone surrounds the nipple. There is sometimes a pretty free secretion of milk from the beginning, but it is generally the third day before the secretion is fully established. The mammary secre-

tion is, probably, dependent upon the internal condition of the uterus already described, being excited as a reflex phenomenon by uterine irritation. The breasts in turn excite the uterus, and these organs mutually contribute to the return of the uterus to the unimpregnated condition, and to the establishment of the mammary secretion. When the milk is first secreted in quantity, there is a great determination of blood to the glands, producing considerable heat, pain, and swelling, which last for two or three days in favourable cases. The mammae often become greatly distended, not only from the secretion and retention of milk, but from tumefaction of the gland itself. The milk first secreted, termed the colostrum, is more irritating than that subsequently formed, and acts as a natural aperient, clearing the bowels of the child from the remains of the meconium, or the secretions accumulated in the intestines during fetal life. Sometimes women suffer considerable pain from the mere weight of their breasts, in which case they require to be supported by a bandage placed round the neck. As soon as the milk is secreted plentifully, the child should be often put to the breasts, and they should, besides, be drawn, if necessary, by the nurse, so as to prevent accumulations of milk in the ampullae, or the galactophorous ducts. Frequent frictions with olive oil, or a mild camphorated liniment, are also very useful, as favouring the flow of milk through the tubes, and diminishing the tumefaction of the glandular lobules. If the breasts are very hot and painful, an evaporating lotion should be applied constantly. The nipple should always be wiped carefully after each drawing of the breast, or the sucking of the infant. As regards the frequency of application of the child to the breasts, a certain amount of caution should be observed. If there be a profuse secretion, and the glands are not relieved, inflammation and suppuration occur; if the child should be applied too frequently, the secretion is greatly increased, as each act of sucking is at once a relief and a stimulus to the gland, and the patient may be weakened by galactorrhoea. Again, if the glands are swollen, but without any great secretion of milk, and the child is constantly applied, great pain is produced, and the tubes and glandules may become actually inflamed, and suppurate from this cause. Mammary abscess during the puerperal month may arise from three causes:—1, the irritation of sore nipples; 2, the distension of the gland, or some portion of its substance and tubes; or 3, the irritation of a feebly secreting gland, by constant attempts at suckling the child. When we desire to diminish the quantity of milk, I generally give sulphate of magnesia, with or without dilute sulphuric acid, so as to keep up a moderately free action of the bowels, and have the breast relieved by frequent frictions, resorting to drawing or suckling as little as possible. These means, with in some cases a diuretic, and restrictions as regards diet and drink, I have never known to fail. When we desire to increase the secretion of milk, warm fomentations, and the application of the leaves of

the castor-oil plant, with fomentations by the water in which they have been boiled: or the use of a castor-oil embrocation, after fomentations with plain water, are very efficacious.

The state of the breasts incident to the establishment of the milk, and the condition of the internal surface of the uterus, often produce a considerable amount of constitutional irritation and fever, known as Milk Fever, Ephemera, or Weed. This is attended by slight shivering, followed by a quick pulse, and is generally relieved by the full secretion of milk and free perspiration. It seldom requires any other treatment than careful management of the breasts, attention to the lochial secretion, and the use of saline aperients and diuretics. It seldom or never lasts more than two or three days, unless it runs on to more serious disorders or mammary abscess, which we shall have hereafter to consider.

The Diet of the puerperal woman is an element of much importance. Up to the time of the establishment of the full secretion of milk, the tolerably free action of the bowels, and the subsidence of the febrile reaction which commonly occurs at the lacteal crisis, the diet should be moderate in quantity and unstimulating. No animal food should be taken, as the rule, up to this period. Cases sometimes occur in which the exhaustion is so great that animal food and stimulus are required from the first. After this time, feeding may begin, and a generous diet gradually introduced. It must be remembered, that the patient has to recover from the long drain which pregnancy is in itself, and to prepare for the drain of lactation. The secretions and excretions being carefully regulated, women may live well after the first few days from the date of labour. The constitution has to get rid of old material, and to repair losses. These indications are best fulfilled by excretion and nutrition. Many women make bad nurses, suffer unduly from lactation, and become nervous and irritable, from being underfed during the puerperal period. Most of the cases of puerperal mania which I have seen, have resulted from exhaustion produced during the first two or three weeks after labour.

Rest, especially in the early part of the puerperal state, is of great moment. Those who get up too early, suffer from hæmorrhage and prolonged lochial discharge, owing to the absence of valves in the uterine veins, and the momentum of the blood downwards. They are also liable to prolapsus from the weight of the uterus, and the relaxation of the uterine ligaments, and the soft parts of the pelvis generally. With respect to the poor, no absolute limit can be placed because of their urgent necessities; but, when it can be done, the patient should remain ten days in the horizontal position, and, after that time, should rest during a portion of the day, until the end of the month.

After parturition, it is natural for the Bowels to be constipated. This, in part, arises from the exhaustion induced by labour in all the organs under the influence of the spinal cord, and, in part, from the small quantity of food usually taken within the first two or three days of the puerperal period. Left

to themselves, the bowels would probably pass a week or ten days in a state of inactivity. It is usual and proper to give a mild aperient dose on the third day after the labour, and the medicine in most common use for this purpose is castor oil; a seidlitz powder, or a draught of sulphate and carbonate of magnesia, in mint-water, will generally suit when castor oil cannot be taken. The idiosyncrasy of the patient should be consulted upon this point, and any aperient avoided which is likely to cause gastro-intestinal irritation.

On paying our first visit to a lying-in patient, which should always, if possible, be within twelve hours of her delivery, one of our questions should be with respect to the state of the Bladder. In long and painful labours, especially in primipara, it not unfrequently occurs that the bladder is quite paralysed to the influence of volition, and the patient finds herself unable to pass urine. The paralysis appears to depend on the pressure exerted upon the neck of the bladder by the foetal head, and to affect the sphincter vesicæ chiefly. The effects of pressure are probably aided by the influence of the shock of labour upon the lower part of the spinal marrow. The difficulty generally disappears spontaneously after a few days, the bladder recovering its tone and irritability. Sometimes a little urine is passed, but the bladder is unable to empty itself thoroughly. Besides asking the question, it is proper, if there should be any doubt upon the subject, to place the hand upon the hypogastrium, when, if the bladder be distended, its elongated oval outline is readily felt above the pubis. The remedy is the use of the catheter for a few days. It is of great importance to diagnose this affection, as a distended bladder may be mistaken for other diseases, and the patient put through a course of inapplicable treatment; or the organ may be ruptured, and lead to a fatal result. The quantity of foetid ammoniacal urine drawn off in some of these cases is quite astonishing.

It is necessary to say a few words respecting the management of the Infant during the puerperal period.

After delivery, it is expected that the accoucheur should make such an examination of the child as will enable him to say that the infant is perfect and well-formed. The state of the genital organs, the hands and feet, and the mouth and oral cavity, should be observed. At our first visit, we should inquire whether the child's bowels have been relieved or not, and whether it has passed urine. The bowels are generally purged by the irritation of the meconium and the effects of cold upon the surface. If the bowels have not been moved, or the evacuations are insufficient, a teaspoonful of castor oil should be given. In cases of retention of urine, the bladder can generally be made to act by sprinkling a little cold water upon the hypogastrium, by applying a hot sponge to the genitals, or by the use of a warm bath. Sometimes the phymosis natural to the male infant is so great as to interfere with the flow of urine, or micturition is always attended by pain. In these cases, relief is obtained by dilating the aperture of the prepuce

by a probe. The child is generally kept in the same room as its mother, and the subdued light proper to the lying-in woman is well suited to the delicate eyes of the child.

The management of the Funis is usually very simple. It is wrapped in a piece of singed linen by the nurse, and the projecting portion dies and falls from the umbilicus within a week after delivery. The stump heals spontaneously; and after a time the navel is drawn in by the action of the urachus, and the remains of the vessels passing from the umbilicus to the liver. Sometimes the site of separation becomes sore, large granulations sprouting from its surface, requiring the application of sulphate of copper, or some other astringent. In some cases these florid growths have required removal by the scissors. Hæmorrhage has in rare instances occurred from the stump of the funis, requiring ice, astringents, and pressure for its relief; and it has happened that children have been lost from this form of bleeding. Traumatic tetanus from the division of the funis is rare in this country, but it is a disease of not infrequent occurrence in hot climates, as the East and West Indies; and it occurs in other localities, as in the Faro Islands, where ventilation and cleanliness are greatly neglected.

A few days after labour, it is very common for the child to be affected with Jaundice. This arises from the great change effected in the circulation of the liver by the establishment of respiration and the arrest of the current of blood between the funis and the liver. This form of jaundice disappears as the liver becomes accustomed to the conditions of extra-uterine life, and the flow of bile is established. When it does not pass off readily, a dose or two of grey powder, and a little castor oil, are sufficient to cure it.

It is hardly necessary to insist upon the Breast-Milk as the natural food of the infant, yet an enormous number of children die annually, within a few weeks after birth, of marasmus caused by want of breast-milk. The medical attendant should invariably contend for the suckling of the child, or the engagement of a healthy wet-nurse. This should be arranged as early as convenient, as much injury is sometimes done in a short time to the tender stomach of the child by attempts at artificial feeding. Pathological inquiries show that the gastric mucous membrane has a tendency to soften under a deprivation of proper nourishment, and this softening is attended by marasmus and fever, ending in death. When artificial feeding is inevitable, the child will have the best chance of life from the use of fluid food only. Asses' milk or cows' milk, diluted at first with an equal quantity of water and sweetened with sugar, the quantity of water being diminished as the child becomes older, form the best infantile nourishment under these circumstances. The milk should always be fresh, and some experienced nurses greatly prefer boiled milk for children.

Many of the matters treated of in the present and the preceding Lecture may be thought to pertain to the nature of "common things;" but at-

tention is not the less necessary to them, if we would conduct patients safely through parturition, and the puerperal state in natural cases. It should always be borne in mind, that at any stage of the processes through which the patient passes between the commencement of labour and puerperal convalescence, the most simple case may be converted into one of difficulty and danger.

LECTURE XXVI.

PRESENTATION OF THE FACE.

GENTLEMEN,—In the preceding Lectures we have treated of the mechanism and management of cases in which the head presents in its different positions. We have now to pass from cranial presentations to those of the face. The transition from vertex to face presentations is easy and natural, because of the identity of the parts concerned. It will be found convenient to direct attention to the following considerations in connexion with presentations of the face—namely, the mechanism, the diagnosis, and the management.

There is a very close analogy between the mechanism of face and vertex presentations. Let the fronto-mental diameter of the fetal head be substituted for the occipito-frontal at the brim of the pelvis, and the similarity as well as the difference will be readily appreciated. It will be fresh in your memories that three kinds of obliquity were spoken of in the passage of the head through the pelvis in vertex cases:—1. An obliquity consisting of the position of the long axis of the fetal head in one of the oblique diameters of the brim. 2. An obliquity, consisting of a dip of the posterior extremity of this axis in the cavity of the pelvis. 3. An obliquity, consisting of a dip of one or other extremity of the bi-parietal diameter of the cranium in the pelvic basin. A similar triple bias, or obliquity, obtains in face presentations. Thus the fronto-mental diameter of the face, which represents the occipito-frontal of the head, in vertex cases, is oblique as regards the diameters of the brim, and oblique as regards the superior plane of the pelvis, while there is a dip of the anterior extremity of the bi-temporal diameter of the face, in the pelvis, corresponding to the dip of the bi-parietal diameter of the head in vertex cases. The chief defect in the analogy of face and vertex presentations is, that while in the latter the posterior extremity of the long diameter of the head is from first to last lowest in the pelvis, in the former there is a change effected, the frontal end of the fronto-mental diameter being lowest at the commencement, and the mental extremity lowest at the end of labour. This defect is, however, more apparent than real, because the face rotates so much in the pelvis as to make the chin represent the occiput in the act of the disengagement of the head. In addition to the parallelism already mentioned, there are certain linear guides to the position of the face which in a manner represent the sutures of the cranium. Thus the mouth may be said to replace the anterior

fontanelle at the commencement of labour. The bridge of the nose corresponds to the sagittal suture; and the ridges of the orbits to the coronal or lambdoidal sutures, as the case may be. The grand difference between vertex and face cases is, that in the former the head is flexed—that is to say, the chin is bent down upon the breast, the occipital extremity of the head thus becoming the most advanced or depending portion of the cranium; while, in face presentations, the head is extended, the chin being separated from the chest as far as possible, and the head thrown back on the nape of the neck. Now, it is obvious that there may be many intermediate positions between extreme flexion and extreme extension; but, as a general rule, one or other of these extremes does actually obtain, and semi-extension is of rare occurrence. When it does exist, brow presentations are produced, and they are amongst the most difficult of cranial labours. Extension of the head increases as labour advances, so that when the head is in the act of disengagement, the chin is further separated from the breast than at any other period of labour. The manner in which such a decided irregularity as the extension which produces face presentations is brought about, is somewhat obscure; but we are in possession of some physiological facts and principles which will account, to a certain extent, for a portion of these, as well as of other forms of mal-presentation. Before, however, going on to state these, it is interesting to remark, that *flexion* is the normal condition of the foetus—every limb, every finger, the trunk, and, in fact, every moveable member is flexed, and the extension of the head, in face cases, must, therefore, clearly be the result either of unusual mechanical or vital conditions, intrinsic or extrinsic to the foetus. The application of the foregoing and following considerations extends, it should be said, not merely to face presentations, but to mal-positions in general. Dr. Fleetwood Churchill and Dr. Simpson arrange the causes of mal-presentations pretty nearly as follows:—

1. Face presentations and mal-positions generally, are the result occasionally of premature labour, in which the moulding influence of the shape and contractions of the immature uterus and the reflex contraction of the limbs of the foetus, are not effective.

2. They are the result of death of the foetus in utero; or, in other words, of loss of muscular tone and the adaptive reflex movements, and an alteration of the specific gravity of the foetal head.

3. They are the consequences of the application of unusual excito-motor stimuli to the foetus and uterus.

4. They are the result of causes mechanically displacing the whole foetus, or the presenting part, at the commencement of labour.

With regard to these statements it may be remarked, that in cases of premature labour it is doubtful whether the excito-motor functions are so well-developed as to determine the position of the foetus in utero, while the small size of the foetus must to a certain extent abrogate those mechanical

relations upon which the application of normal stimuli depend. With regard to death of the foetus in utero, it is right to state, that although the absence of reflex motions may have a share in producing abnormal presentations, yet there is reason to doubt whether a mere physical explanation may not suffice for a certain portion of them. I have on a former occasion referred to some very interesting papers, by Dr. Matthews Duncan, of Edinburgh, on this subject. If normal stimuli determine the natural presentation, abnormal stimuli must of course be admitted as the efficient causes of some errors of presentation; but to analyse the exact nature of such cases, and to determine how and when they are produced, is out of our power; their history must, in fact, be a matter of pure conjecture. The fourth series of causes mentioned are more within the scope of actual observation, and may sometimes be traced with considerable accuracy: thus, a vertex presentation may obtain before the foetal head has become engaged in the inlet of the pelvis, and it may be altered by premature and sudden rupture of the membranes, especially if the quantity of liquor amnii be usually great. Thus much in relation to face presentations generally; let us now trace the mechanism, in each variety, from the commencement to the termination of labour.

There are four presentations of the face, as of the vertex, and they are similarly numbered. In the first, the forehead is towards the left acetabulum; in the second, towards the right acetabulum; in the third, towards the right sacro-iliac synchondrosis; and in the fourth, towards the left sacro-iliac synchondrosis. These positions are the exact analogues of the four vertex presentations respectively, and may be looked upon as vertex cases in which the head has become accidentally extended. In practice, it will be found that the third and fourth face presentations are so extremely rare as hardly to be worth enumerating, and consequently our attention may be confined to the first and second only. The first is the most frequent, being to the second, according to Nægele, as twenty-two to seventeen. As regards the frequency of face-presentations, Dr. Fleetwood Churchill has collated the proportion in nearly a quarter of a million of cases, and he finds that this mal-presentation occurs once in about 231½ cases.

In the First Facial Position, if the finger be introduced into the os uteri at the commencement of labour, it will impinge upon the bridge of the nose; carrying the finger forwards and to the left, it arrives at the forehead, which is found opposite the left acetabulum; and just beyond the root of the nose the frontal suture may be traced upwards and forwards, widening in its course towards the great fontanelle. This opening can, however, seldom be reached; and, indeed, the farther out of reach it is, the more favourable is the position of the head. Tracing the nose backwards and to the right, the mouth is reached, and the alveolar ridges may be distinguished. Still further backwards, the chin may be found in relation with the right sacro-iliac synchondrosis. The line represented by the bridge

of the nose does not, however, cut the os uteri equally, it is more posterior than anterior, and consequently the right side of the face occupies the anterior and greater segment of the mouth of the uterus. The primary caput succedaneum will in this presentation be found upon the upper half of the right side of the face, and will include a surface corresponding to the right eye, malar bone, and adjoining parts. Thus the upper and right aspect of the face is lowest in the pelvis. As labour advances, and the head descends in the pelvis, the head gradually turns, so as to bring the chin forwards from the right sacro-iliac synchondrosis to the right obturator foramen; and in accomplishing this rotation from right to left, the chin is brought lower in the pelvis. The spine of the ischium in face, as in the ordinary vertex presentations, is the directing agent, and the chin of the fœtus is the part acted upon in the latter. In the first cranial position, it will be remembered that the left side of the posterior extremity of the head glides down the inclined plane formed by the anterior surface of the left ischial spine, and that the head has thus a rotation imparted to it from left to right. In the facial presentation under consideration, it is in the left side of the chin which comes in contact with the anterior surface of the spine of the right ischium, and thus the rotation, although of an exactly similar nature, is in the reversed direction, *i. e.* from right to left. In both cases, however, the same general statement applies—namely, that the opposing surface of the fœtus is thrown downwards and forwards under the arch of the pubis. As the chin advances and turns forward, the arch of the cranium is directed backwards towards the hollow of the sacrum, and thus the head is completely lodged in the cavity of the pelvis. The right cheek and angle of the mouth are now the presenting parts, and the chin is just about to emerge from under the arch of the pubis. The next step is emergence of the chin, not exactly in the middle line, but still directed somewhat to the right, as in vertex presentations, where the antero-posterior diameter of the head is never exactly in relation with the antero-posterior diameter of the outlet of the pelvis. By the liberation of the chin, room is gained; and now a process of flexion takes place analogous to the extension of vertex presentations: the chin becomes temporarily almost fixed, and the head rotates upon its transverse axis, so as to bring the vault of the cranium out with a sweep over the perinæum, the occiput being the last part expelled. During the flexion described, there is an advance of the head *en masse*, but it is not so conspicuous as the flexion. If the face remains long in apposition with the os externum, a secondary tumour forms on the cheek; but instead of being on the upper, it is on the lower half of the face, and involves more of the opposite side of the face than the primary tumour does. This is evidently in consequence of the depression of the chin, and the change from an oblique to an almost antero-posterior position of the long diameter of the face. The head having been expelled, the rest of the

body behaves as in first vertex presentations. The right shoulder, being lowest in the pelvis, is propelled against the anterior surface of the spine of the right ischium, and rotated from right to left, so as to place the shoulders nearly in the antero-posterior diameter of the outlet of the pelvis. The right shoulder is thus born first, and the left sweeps over the perinæum. The hips are born in the same manner. The following engravings represent the presentation of the face at the brim of the pelvis, at the outlet, and passing through the external parts.

FIG. 111.



Presentation of the face at the pelvic brim.

FIG. 112.



Emergence of the head from the pelvis in face presentation.

FIG. 113.



Passage of the head through the external parts in face presentation.

In the second Facial Position, the details of the mechanism are exactly similar, only that the forehead is directed towards the right acetabulum, and the chin towards the left sacro-iliac synchondrosis, and all the rotations of the first position are exactly reversed. In fact, by using the word "right" for "left," and "left" for "right," the description of the mechanism of a first facial position applies with the utmost precision to the second also.

In the first position of the face, we may, while it passes through the pelvis, compare the situation of the chin to the situation of the vertex in the third position of the head. The same rotation of the part first to emerge through the pelvis, from the right sacro-iliac synchondrosis to the right side of the pubic arch, is usually effected in both. We may also compare the second facial position to the ordinary termination of the fourth vertex presentation, the chin in this case rotating from the left sacro-iliac synchondrosis to the left side of the pubic arch. In face cases, the mental protuberance is the thread of the screw which is in contact with the ischial planes, and the rotation amounts to about one-fourth of a circle. As the chin passes out of the pelvis in the first facial position, it is in the same position as the vertex in the second cranial position; while in the second facial position, the chin emerges in the same path as the vertex in the first cranial position.

Certain varieties of face presentations have been described, in one of which the chin has been spoken of as sweeping over the perinæum. Smellie and Hamilton both include such cases in their systematic account of face labour; but with a normal pelvis and fetal head of the ordinary size, such a mode of termination is utterly impossible without the aid of instruments. There is an intermediate presentation in which the head is neither completely flexed, as in vertex cases, nor completely extended, as in face presentations: this was alluded to before, and is the brow presentation. On examining these cases at the commencement

of labour, the frontal protuberance of the right or left side will be found to be as nearly as possible the presenting part. The diameter of the fetal head which enters the right or left oblique diameter of the pelvis, is that between the chin and the great fontanelle; the chin may be towards the right or left ilium. In the first, the presentation will be the analogue of a first vertex or face case, and the latter of a second vertex or face position. As labour advances, the head sinks down in the pelvis, and the right or left side of the face becomes most anterior and lowest in the pelvis, according to whether the case represents a first or second face case. The finger now easily arrives at the great fontanelle, which is anterior, and to the left or right, as the case may be, and in the opposite direction the chin may be found. Both the anterior fontanelle and the chin are higher in the cavity of the pelvis than the forehead. Unless the pelvis is very large, or the head of the fetus very small and yielding, the case now comes to a stand-still, the arch of the cranium being forced down upon the pubis, and the chin hooked against the upper border of the great sacro-ætiac ligaments. These cases require the aid of the forceps, and are difficult to manage, on account of the fact that these instruments can only be applied in this position to the face, over which they slip very easily.

The diagnosis of face presentations may be considered to rest upon the absence of certain signs peculiar to other presentations, and upon the recognition of parts actually belonging to the face. The face may be distinguished through the membranes as a very uneven surface, totally dissimilar to the hard, smooth, globular mass of the vertex. If the head is very high, and the membranes tense and tough, it is not so easy to recognise the parts. It is still more difficult to determine the position through the walls of the cervix uteri. In a latter stage of labour, continued pressure may so modify the contour of the face, and induce such swelling of the features, as to simulate very much the general aspect of a breech presentation. In this case, the malar bones, with their soft coverings, may be mistaken for the ischia and buttocks, the mouth may be so swollen as to be easily confounded with the anus, or the eyes may be confounded with the vulva of a female child. When no peculiarly untoward circumstances are present to obscure the real nature of the presentation, it is tolerably easy to recognise, the frontal suture narrowing towards the root of the nose, the ridge of the nose, the orbits on each side, with their bony circumferences, and, beyond the nose, the large cavity of the mouth and the firm edges of the alveolar processes. If any doubt exists as to whether the face or breech presents, the difficulty may be cleared up in certain cases by an appeal to the surface of the abdomen: thus, in thin women, the parietes of whose abdomens are lax, and in whose uteri there may happen to be but a small quantity of liquor amnii, the head may occasionally be recognised externally as a spheroidal mass at the fundus of the womb, and this, of course, negatives the possibility of a

face presentation. On the other hand, the character of the meconium may become diagnostic; for although it may be met with both in pelvic and cephalic presentations, yet, in the latter, it is in a diluted state, and is very different from the tenacious meconium of a breech case, which has not been mixed with the amniotic waters.

We now arrive at the management of face presentations. In former times a great variety of contrivances were in favour amongst obstetricians for facilitating delivery in face cases. The foundation of this love of interference was evidently the strong conviction, which anciently prevailed, of the preternatural nature of the presentation, and this scientific prejudice found its practical development in procedures essentially meddlesome and bad. The first of these unphilosophical procedures was that of turning; it was, of course, only recommended when the head was high in the pelvis and the liquor amnii as yet undischarged. Almost in the present generation turning has been recommended in face cases by high authorities. It is a well ascertained fact now that, even putting out of the question the danger which may accrue to the mother from the operation of turning, the result to the child is that the chances of death are more than doubled. The greater control which the accoucheur has over the progress of labour is certainly an attractive feature in the mode of practice; but as very rapid delivery is by no means the great desideratum of obstetrics, it is as well to relinquish the control for the sake of additional safety. It should never be forgotten, too, that in all cases of version, however skillfully performed, there are certain risks to the mother, arising out of mechanical violence, inflicted either by the operator, or by the uterus upon itself; while shock and irritation, perhaps running on into inflammation, are but too frequently the results of manual interferences, in which no mechanical violence whatever has been applied to the parts. Turning can only be admissible when there is such a complication as necessitates our putting the safety of the child out of the question, and balancing the operation of version against some more violent natural or artificial termination to the labour. Dr. J. Clarke adopted another plan, which was to wait until the head had descended into the cavity of the pelvis, and then to exert steady pressure, in a direction upwards and backwards, upon the presenting cheek during each pain; by this means he averred that he succeeded in lodging the face in the hollow of the sacrum, and that the labour then terminated as in vertex cases. Whatever may have been the results of this practice in the hands of Dr. Clarke, it is obviously attended with considerable risk; in the first place, success is very doubtful, and it is far more probable that a brow presentation will be brought about than that a rectification will be produced; and in the next place, the procedure is a violent one as regards the child. A moment's consideration of the mechanical relations of the parts concerned will show that, as soon as any elevation of the chin is obtained, the arch of the cranium will be brought down upon the

pubis; and should the uterus act with any vigour, he will be a dexterous operator who terminates the case without the forceps or some graver procedure still. A more pernicious mode of practice than either of the above was first recommended by Baudelocque, and received the sanction of Lachapelle, as well as some British obstetricians. The operation was founded upon a misconception of the mechanism of labour in face cases of the following nature. It was supposed that whenever the chin was towards the sacro-iliac synchondrosis of either side, the head must necessarily pass out of the pubis with the chin directed posteriorly. Whenever such cases had been actually observed, they had certainly been seen to be attended with a great risk to the foetus and suffering to the mother; but the grand error was, that not only are mento-posterior presentations, as a general rule, changed into mento-anterior ones, but that, instead of mento-posterior positions being exceptional and peculiar, they are the most frequent of face presentations. The fact that the chin was generally towards one or other sacro-iliac synchondrosis was not known, and the rotation of the chin forwards in nearly all cases was equally undiscovered. It was thought that an original anterior position of the chin was the only favourable position in face cases, and, knowing what we now do as to the infrequency of this presentation, it can hardly be a matter of surprise to us that such frequent manual interference was resorted to, and that such an unfavourable prognostic was applied to face presentations in general. The operation was performed quite in the early stage of labour, and before the membranes were ruptured. It was recommended to introduce the hand into the vagina, through the os uteri, and into the space between the brim of the pelvis and the forehead of the foetus; the palmar surface of the fingers being kept towards the head of the child. The next step was to rupture the membranes and hook the fingers over the arch of the head, and drag down the occiput if possible,—indeed this is the object of the procedure—and thus convert the face presentation into an ordinary vertex one. The objections to this method are numerous. Since Nægele wrote his celebrated treatise on the mechanism of labour, it has been generally known that not only is the chin at first generally directed backwards, but that, in nearly all cases, it turns forwards under the arch of the pubis as a necessary result of normal relations between the pelvis, the foetal head, and the expulsive powers. Having thus eliminated a large proportion of cases from the category of those requiring artificial assistance, let us inquire, What are the dangers of Baudelocque's operation? It must be granted that the introduction of the whole hand at the commencement of labour, before the external organs of generation are dilated and softened, must be an extremely painful procedure for the mother, and the efforts used for the introduction of the hand into the uterus can hardly fail not only to be painful but to give rise to serious accidents. M. Moreau saw a case in which rupture of the uterus, followed by immediate death, was the result of this ope-

ration, and the circumstance is the more worthy of notice, because the operator was a person well used to obstetric manipulations.

In the next place, the sudden escape of the liquor amnii before the head has become engaged in the superior strait of the pelvis is very likely to result in descent of the funis, a circumstance which places the fœtus in extreme peril. Again, an arm may descend, or even two may come down, and create additional difficulty in the further progress of the case; and, finally, it is an inseparable result of these tentative efforts, that when they fail to produce a vertex presentation, recourse must be had to the forceps or pelvic version. It may be added, that the early evacuation of the liquor amnii is a circumstance extremely objectionable in itself, as subjecting the fœtus to the immediate pressure of the uterine walls, and abrogating all those arrangements which conduce to easy delivery in a spontaneous vertex presentation. If the operation were easy and inoffensive, and if it placed both mother and fœtus, after its accomplishment (always supposing it to have been accomplished), in the same condition which would have obtained in a spontaneous vertex position; if, in a word, the least analogy existed between a labour where the vertex presents spontaneously and one in which it had been dragged down, it would be proper to resort to Baudelocque's method; but inasmuch as failure is probable, the condition produced not identical, the danger to mother and child from the operation itself not small, and the alternative after failure another and still graver operation, the whole proceeding is totally inadmissible.

In actual practice, it will be found that the treatment of face cases is extremely simple. We may assist the chin in making its rotation forwards and downwards, by introducing the finger into the child's mouth, making traction upon the lower jaw, and bringing it under the arch of the pubis. Meigs lays it down as the great rule of practice in face cases, that the chin should be brought towards the pubis as the face emerges from the pelvis. This is an analogous procedure to that of bringing the occiput down in vertex cases, either directly, by the fingers applied to the back of the head, or indirectly, by pressure exerted upon the forehead. The principle is the same in both cases—viz. to favour the birth of that part which tends to be born first. Should the head fail to rotate in the pelvis, the forceps will generally be necessary, or the head must be dislodged, and the child delivered by turning. Where delay arises, not from faulty position, but from disproportion in bulk between the head of the fœtus and the pelvis of the mother, or from inadequate uterine contraction, the same rules of treatment apply as in cases of impaction or inertia uteri, where the vertex presents, with this modification, that as the parts engaged in the pelvis are more solid, less advantage will be gained by delay in so far as moulding of the head is concerned, and more danger will accrue to the mother from pressure upon the rectum and bladder. The fœtus itself is more endangered, too, by long engagement in the pelvis, in face than in vertex po-

sitions, the vessels of the neck being often injuriously pressed upon. During the progress of a face case, care should be taken to keep the pelvic viscera empty, and to preserve the membranes entire as long as possible. In making examinations, the delicate structure of the organs within reach should be remembered, as cases not unfrequently happen in which the eyes have been seriously injured by careless manipulations. Examinations should not be more frequent than necessary to determine the exact presentation at first, and the subsequent rate of progress. The apartment should be kept cool, and the patient's courage supported by a cheerful and confident demeanour on the part of the accoucheur. The perinæum should be carefully guarded, but not pressed upon. After birth, the features of the child will generally be found hideously distorted, the mouth dragged to one side, and one or both eyes occluded. Fomentation with warm water, decoction of poppy-heads or marsh-mallow, will be all that is necessary, as the parts will gradually return to their normal condition. The parts of generation of the mother require similar applications and great cleanliness.

Lectures

ON THE

HISTORY AND CONSTITUTIONAL CHARACTERS

OF

PHTHISIS,

DELIVERED AT THE

Hospital for Consumption and Diseases of the Chest.

BY JAMES E. POLLOCK, M.D.,

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LECTURE I.

GENTLEMEN,—I propose, in these lectures, to direct your attention to Phthisis as a disease of the system. The advances of modern pathology have introduced us to new and enlarged views of disease, and by the light of chemical, microscopical, and pathological researches, we have learned to regard the great vital machine as a living whole, whose functions, united in a wonderful harmony, are incapable of being separated in their normal action, and whose derangements it is equally impossible to study in a separate, isolated, or disjointed manner. The time has gone by when even the most trivial local injury can be regarded as representing a single action in the system, and the greatest masters of modern surgery have in no respect more than this improved their practice, by regarding and treating a wound or a fracture as a disturber of the whole vital arrangement which constitutes health. There is an immediate sympathy between the injured part and the nervous and circulating systems: an extensive superficial burn

of integuments alone is followed by fatal collapse; the ill-conditioned wound of tendons gives rise to a fatal tetanus; while remoter results are to be found in the altered state of the very constituents of the blood itself, which so often terminates in the phenomena which we call fever. These are familiar and self-evident facts; but they lead us in a chain of causation to phenomena more difficult to appreciate, yet deeply interesting and important. In surgical injuries we have the preceding lesion of tissue, and the consecutive disorder of vital actions; while in the fever, the delirium, the fatal convulsions, the purulent infiltration of tissues, or the collapse which may follow a wound, we have an evidence that no action of the system is single, and no disorder localized.

But the phenomena of disease, not induced by injury, are reversed; and here is a great pathological truth coming out to us—burdened, it may be, with theories but half sustained, and names which only give a scientific covering to scanty information, yet pregnant with the highest discoveries. In the one case we have the local injury giving rise to the vital disturbance; in the other, we have the vital disturbance causing and preceding local disease. In certain acute affections, as typhus, and the exanthemata, the presence of poison is sufficiently evidenced as the cause of the disturbance of the system; and the great excitement, the subsequent exhaustion of the nervous power, the depraved secretions, the skin eruptions, and the altered state of the blood itself, are evidences of the existence of a specific agent in the body. In chronic affections, it is even more evident, that a change in the vital constituents of the blood itself has preceded the disordered local action; but inasmuch as all such changes are gradual, and have their primary seat and origin in the daily renewal and disintegration of the tissues, and in the final conversion of alimentary matters into blood—phenomena which touch the most closely on the very seat of vitality, and which of necessity are slow, and hidden in their beginnings, we require no ordinary care in observation, and no mere slight acquaintance with physiological actions, to recognise in these antecedent disorders the remote causes which are to eventuate in a recognisable and defined *local disease*. Yet to those who will study the great book of Nature, there is no truth more manifest than this, that to every chronic disorder of organs resulting in an alteration of their *structure*, there is an antecedent cause in the constitution—a *systemic disarrangement* which stands in a distinct, causative relation to that local disease, and is, in fact, the essence of the affection itself.

These views, dimly seen by the humoral pathologists, constitute the modern doctrines of which we are as yet but the humble students. They have come to us as the result of deep researches in animal chemistry and late improvements in every branch of morbid anatomy, but we are no less indebted for them to the acute observations of a long line of pathologists, who, if they have left us many crude theories, have at least not hidden the materials from which their doctrines were elaborat-

ed, and which still remain to us, as they were to them, undeniable facts, carefully recorded, taken at the bedside and in the dead-room, to which we may come with confidence, and from which we are as free as they were to argue and to learn. The student of pathology, then, while he will be more attracted by the researches of Rokitsansky and Skoda and their brilliant theories, cannot afford to pass over the labours of Louis and Laennec and Andral, nor of Carswell and Baillie. The great ladder of science is only to be ascended from the bottom, and we know of no way to knowledge but through the gradual toil which will patiently accept all labour in the same direction, and learn, without prejudice or contempt, from the accumulated evidence of the past.

With this introduction, it will be my object to lay before you a picture of the constitutional affection which we call phthisis; to point out from its history, its progress, and its terminations, that it is a systemic disease, of which the lung affection is only an *indication* and a *stage*, and to deduce from these facts the impossibility of estimating the degree of the danger of any individual case from physical signs alone, however valuable these last may be in assisting our diagnosis. With great refinements in auscultation, we have come to regard tubercle in the lung too much as a local disease, whose signs are most valuable when most declared; and as no small amount of commendable labour has been bestowed on the early recognition of alterations in the pulmonary structure by means of the stethoscope, we incur some risk of valuing too highly these methods of assisting our diagnosis—which instrument, as it reveals the *accomplished effect* of disease, and throws no light on its *cause*, must be ranked as of secondary importance in estimating the true nature of our cases.

If we are satisfied with the *recognition* of a deposit of tubercle in the lung, and if we accept this as the starting-point in our study of the disease, and in its treatment, we shall greatly err in our pathology, and find ourselves often too late with our remedies. Again by too exclusive a study of the local affection and its physical signs, we may come to regard phthisis as purely a lung disease, and, viewing it from this side of the question, to attribute all the constitutional disorder to the systemic disturbance consequent on a local irritation. Now, to those conversant with the history and progress of phthisis, it is well known that the amount of injury to the lung is no measure of the constitutional suffering, and I shall have occasion to bring before you many cases in which life is supported after the formation of extensive cavities while in others death occurs in the earlier stages, before much damage has been done to the pulmonary structure. In the acute inflammatory affections, which diminish the respiratory capacity, we are all familiar with the fact that an immense amount of breathing space may be blocked up by the plastic exudation of pneumonia, or the compression caused by liquid effusion into the pleura, and the patient be but little incommoded. It has occurred to me, as to many of us, to be the

first to point out to a patient that his breathing was entirely one-sided, and to discover by signs, what no symptom had indicated, that one lung was rendered wholly useless (for the time) by the compression of many pints of fluid in the pleura. Again, how often have we not seen a one-sided pneumonia, where the lung, after the subsidence of the inflammatory symptoms, was so solid as only to admit air into the larger bronchial tubes, and the patient, if not moving, was but little distressed by dyspnoea.

Here, then, we have instances of mechanical (so to speak) obliterations of respiratory space, attended with comparatively little disturbance to the system; and it is not so wonderful when we remember that the pulmonary air-cells can permit of distension to at least twice or three times their natural size without rupture, being afterwards capable of returning to their normal condition, and that thus we have a wonderful provision for that compensatory and increased respiration which we always observe in such cases to take place in the unaffected side.

It is therefore evident that the *extent* to which an obliteration of the air-cells has taken place is no measure of the constitutional suffering, nor, within certain limits, of the *danger*.

Again, it is well known that the *stage* to which tubercular disease has reached is no invariable measure of the systemic disorder. We are all aware that cases are of daily occurrence, in which the physical signs of softening tubercle, and of the formation of extensive excavations in the lung, are very evident and easily recognised, while the general health is comparatively unimpaired, and life may be indefinitely prolonged; or, in a still larger class of patients, the progressive decay, softening, and expectoration of tubercle may be attended with most urgent symptoms, which shall moderate or even almost cease, when a cavity is formed, and the patient rally immediately and gain flesh and strength. Such cases induced Laennec to look on the formation of cavity as one of the natural cures of the disease; and although we must regard perfect cicatrization as a very rare occurrence, the records of this hospital, and our own daily experience, show us that it is by no means rare to meet with what may be called "tolerated" cavities in living persons whose health is but slightly impaired, and whose powers are equal to many of the occupations of active life.

Thus we may assume that neither the *extent* of tubercular deposit in the lung, nor its *stage*, indicated by physical signs, is a true measure of the constitutional disturbance, nor of the danger. These considerations have induced me to place before you such evidence as we appear to possess that phthisis is a true systemic disease; that the local affection in the lung is only one indication and result of the previous blood disorder; that with certain exceptions the symptoms are referrible to the constitutional disease rather than to the local affection; and that our remedies must be applied to the former rather than to the latter condition. The arguments in support of these views are

derived from the history of the disease, from its progress, and from its terminations; from the negative evidence to be obtained in statistical inquiries to its exciting causes; and from a study of the affections which simulate it, and of those which seem plainly incompatible with the tubercular habit.

As connected with the modern pathology which prevails in the German school, and with the numerous theories of the origin of phthisis in our own country, it will be seen that there is no novelty in the view which I propose to take; but while we are engaged in a study of the general aspects of phthisis, if the subject appear old and well-worn, I would bespeak your indulgence, on the ground that it is quite plain that all improvements in our pathology must come in this direction, and that it is not by refinements in auscultatory instruments that we can hope to advance our knowledge of one of the most destructive of all chronic affections. In reviewing its progress, I shall not associate any theory with the facts, but desire to allow these facts to lead up to the most plausible interpretation of the phenomena which the disease exhibits.

We are here met in a building where, as in a great book, are imprinted again and again the same characters of disease; and from this frequent repetition I would have you gather facts which we can all identify, before theorising on their meaning. Such as the disease is in thousands, so must it be read, or not at all; the curious and exceptional cases must not be reckoned on. The reiteration of phenomena must imprint themselves in their own characters; and divisions of the affection not based on observation must be discarded.

The disease which we have agreed to call *Phthisis* owes its name to one leading, marked, and invariable symptom—wasting of the tissues. Without this wasting there is no phthisis—no *consumption*, as it is popularly and not erroneously called. But all affections characterised by wasting are not phthisis; and we have, as you are aware, limited this term to a wasting which is accompanied by the deposit of a certain substance of low organization and imperfect vitality in the structure of the lung and of other organs. Before proceeding further, I would, however, fix your attention on the meaning of this word "phthisis," or wasting; as it not only constitutes the leading feature of the disease, but is its earliest symptom and most fatal character. Some have even gone a step farther, and pointed out as one possible origin of the blood disorder which results in a deposit of tubercle, the waste of tissue, which, when not removed from the system or converted to reparative uses, leaves an excess of fibrine in the vital fluid, which is readily deposited as tubercle. This deposit, when once established, is recognisable by certain physical signs, the earliest of which are due to consolidation of the lung; the later, to the changes which that deposit undergoes—a softening of the tubercular matter constituting a second stage of the local affection, and its ultimate removal by its disintegration and expectoration forming the third and natural division of the disease. The tubercular matter, at first isolated in grey-coloured

granules, becomes yellow and massed; its softening is due to its invariable character: an inherent tendency to decay—an impossibility of being raised into a higher degree of vitality, and so becoming an integral part of the surrounding tissues and partaking of their vascular and nervous supply. Whether it is possible that in this stage it may be absorbed or resolved, like the plastic exudation of pneumonia, is a question of deep pathological import, on which you will hear divided opinions, but it is highly probable that it may be so removed, and so a cure effected.

This, then, is the ordinary history of the local changes in the lung which constitute consumption. The stages may vary in duration and in progress; the symptoms may vary in individuals, and the amount of constitutional suffering be so different in three cases, that in one the patient shall die in the first, in another in the second, and in another in the third stage of the disease; yet still the local characters of the affection are invariable, or change so slightly that the same stamp is on each. And, as all are agreed on this general uniformity of the tubercular progress, we may pass at once to the subject which more peculiarly occupies us,—the *constitutional character of the disease*, its origin in the system, and its advances to ultimate local disorder.

Now, discarding for a moment the divisions of phthisis with which you are familiar from books, and which are not always seen in practice—such as the slow, and rapid or “galloping,” form of consumption, the hæmoptysical, and other varieties, names which only signify the varying intensity of the general disorder, or the local symptoms which characterize it—I will offer you a sketch of the disease, drawn from very many cases, and then proceed to consider one or two important questions.

The first state of phthisis is generally stated to be that in which the physical signs indicate a deposit in the lung. But we must begin higher up; there are undeniably earlier *symptoms* than there are *signs*, and long before the ablest and most skilled observer can detect the sounds which indicate solidification, there is an antecedent state of disordered health which, as a causative agent, originates the altered state of blood, not merely predisposing to tubercle, but elaborating and preparing the material from which tubercle is to be formed and deposited in the lung. To this part of our subject, I would entreat your earnest attention, and for it I would bespeak your future study. It is not only the key to the pathological meaning of the disease, but it is the hopeful period for treatment—the critical time in which we may check the inroads of the most fatal of all affections incident to the human frame. If we are to wait till an unorganizable product of low vitality, and only decomposing chemical tendencies, is deposited in the lung, before we call the disease established, or begin to treat it, we are beginning at the wrong end, and looking for a remedy when the mischief is done.

From my own careful observation, and a minute questioning and examination of some hundred

patients, as well as from opinions expressed by others with far greater opportunities, I feel no hesitation in saying, that the earliest symptom of tubercular disease is *wasting*. It precedes the cough and the hæmoptysis, and all of the physical signs, and it is earlier in point of time than the hectic. Now, this wasting is peculiar and recognizable; it is what gives the *phthisical aspect*. It is probably first manifested in the face and hands; it withdraws the fatty cellular cushion which gives the rounded appearance of health to the cheek, prominence to the eye, expansion to the brow and temples, and it thins the scalp. It lessens the pulpy cushion around the nails, and helps to club the fingers. Next, the muscular tissues waste; the legs and chest muscles fall away; hence the second symptom, *debility*, or diminished muscular power. The state of the skin here deserves notice; it is pale—not exactly the pallor of anæmia (for extreme anæmia may exist without phthisis, and is not frequently allied to it), but it is more than pale, it is relaxed and flabby, to the touch it is moist, to the eye, dull in colour. Coincident with these symptoms, there is the sense of *debility*—of something wrong; a feeling that vital powers are flagging, that nutrition is not active, that the waste of the living machine is more rapid than its repair. Hence the depression of spirits to which some attribute the origin of the disease, but in truth it is its consequence, although helping in its progress, for if nervous structure is not nourished, it will fail in its work, just as muscular fibre will fail; and with diminished nervous power we all know how the emotions begin to master intellectual vigour, and the natural resistance made by vital energy to any debilitating attack. At this time, the secretions are natural; the urine not materially altered in specific gravity, but the amount of urea varies, and is probably below the natural quantity. I point attention to this, for perhaps it will be found that this diminution in the quantity of urea is invariable. Now, urea is one means of ridding the system of its waste material, but the *débris* of muscular waste is not poured out by this outlet. The liver acts as before; the bile is unchanged in character—it is not excessive, at least; there is no expenditure of the refuse of tissues in forming the constituents of *bile*. The time has not yet come in the history of the disease, when the decarbonization of the blood is impeded by the obstructed lung, and thrown on the liver; consequently, bilious disorder, or altered hepatic structure, are not common in the early stage of phthisis. The primary acts of digestion, forming, as they do, a peculiar vital function, with chemical actions which are exceptional in the animal economy, are generally well performed. If appetite flag, it is for want of the vital and nervous power which so peculiarly governs the desire for food, the *capacity* of digesting is there, unimpaired, and so it often is found to the last hour of life in this disease. Occasionally however, acidity is a symptom met with, and it were wrong to omit this, for it has been stated that some precipitation of the albuminous material from the blood

takes place from this excess of acid ; but it cannot play a very important part in changes which are far more deeply seated in the system, many steps further on in the conversion of aliment into tissue.

The first indications of febrile disorder are now manifested. The pulse is accelerated, not to a uniform high standard, but at intervals. It seems as if the altered *quality* of blood had become possessed of irritative qualities, and so excited an irregular and occasional action of the heart, or were insufficiently stimulating to maintain an unvarying, vigorous contraction of the ventricles, and the elasticity of the arteries ; hence the occasional palpitation and the flushings. The febrile chill and sweats are now very often present—the chill short, the perspirations long—the converse of the malaria febrile paroxysm.

Now, I wish it to be clearly understood, that all this may occur *without any physical signs* of deposit in the lung, without any cough, without any hæmoptysis. It is only to those who are intimately conversant with chest auscultation that this fact will be recognisable and evident, but it is so. Those who specially study chest diseases are accused of over great refinements in their description of the earliest physical signs of phthisis, and they are often disbelieved by others with less practised ears. They are therefore at least little likely to overlook the dull percussion-note, the deficient inspiration, the prolonged expiratory murmur, or any of the other reputed earliest signs of a deposit of tubercle in the lung ; yet those most practised in auscultation, and most anxious to register the faintest indications of solidification in the pulmonary tissue, will fail to detect any one abnormal sound in the chest at this period.* The sweats of which I have spoken are often excessive—the waste of the system seems to find an exit here, and the loss of weight is often very remarkable, and very rapid. Coincident with these symptoms, there may be others very important when they exist, but are not uniformly present, and which indicate a deep disorder of the blood itself. Such are purpura and mucous hæmorrhages. A remarkable case of this kind, which I have watched very carefully, and in the treatment of which I have been assisted by my colleague, Dr. Hamilton Roe, will illustrate some of the leading features of this stage.

A. B—, a gentleman aged forty-eight, six feet three inches in height, well made, wide chest, erect gait, good muscular development ; looks some years younger. Parents and collateral branches of his family free from chest disease ; one sister has been for years affected with chronic phthisis, and is still living ; one daughter has been more recent-

ly attacked by the same disease, and now exhibits the symptoms and signs of softening tubercle. This gentleman led an active regular life, took much exercise on foot, often in the country, and spoke in public at least twice a week. For the year preceding February, 1855, he had complained of unusual fatigue on exertion, and though of unvarying cheerful disposition, he often looked and felt fagged. For two previous years I had remarked in him the gradual formation of arcus senilis, which is now a perfect ring. In the spring of 1855 he rather suddenly got much weaker, felt unable to take his usual Saturday's walk in the country, and began to lose flesh rapidly, his face looking worn, and the calves of his legs becoming flabby. He said to every one that he felt very ill, but could not tell what was the matter with him. His appetite became indifferent, but he continued to live well, and took three glasses of wine daily. He had no cough nor expectoration, no pain nor dyspnoea ; his urine was natural, or rather paler than natural, and its specific gravity of rather a low standard ; his pulse was rather small and averaged 85. Slight chills then occurred, and *sweating* began to some extent. His chest was normal ; there were no physical signs whatever. In June he left for Ireland, but got rapidly worse, and when there his legs became spotted with purpura. For this he took mineral acids, but becoming alarmed, he returned to London in July, very weak and much exhausted. At this time I met Dr. H. Roe in consultation. The sweating, debility, and purpura were the leading symptoms. He had slight nausea, and a whitish tongue (of chronic dyspepsia). A careful examination of the chest showed only that (as we thought) there was general diminution of the healthy *tone* of the percussion note, but this was not localised ; it was not more apparent under the clavicles than elsewhere ; it was the single sign which we could detect. At this time he began to have slight, dry cough, and some dyspnoea. By Dr. Roe's advice, he took one grain of tartar emetic every six hours for two days, remaining in bed and taking broth nourishment. The first two doses produced violent vomiting ; the rest were tolerated. We now sent him to Germany, and gave an unfavourable prognosis of the case, as he was rapidly losing flesh. He went to Hamburg, in July, 1855, and shortly after removed to Schwalbach, and contrary to our advice (which reached him by letter too late), he took a course of the powerful chalybeate waters, and bathed daily in a mineral bath of about 84°. In the beginning of August, I accompanied a patient to the Rhine, and wrote to this gentleman to meet me. When I saw him, I was shocked at the change in his appearance. He was wasted to an extreme degree ; his features fallen away ; his legs so thin that he could scarcely walk. He had that peculiar feeling of weakness and pain across the sacrum, which indicates, when chronic, a high degree of vital exhaustion. The sweating was profuse, wetting a mattress every night, so that he was obliged to use two beds. The cough was not severe, but was worse than formerly ; it was short

* My colleague, Dr. Cotton thus corroborates this view :—"The really phthisical symptoms, at the commencement of the disease, depend, not upon the state of the lungs, but upon the morbid condition which has produced it. It is true, that in the latter stages, much of the patient's suffering is a direct consequence of the pulmonary disease ; but, at an earlier period, the general features of the malady—the weak and quickened pulse—the languid expression—the perspirations, &c.—depend entirely upon the *phthisis*, not upon the tubercle."—*London Journal of Medicine*.

and dry. He had no expectoration, and never had hæmoptysis.

A very careful examination of the chest gave the following results:—There was slight dulness, rough and deficient inspiration, expiratory murmur prolonged, and a sensible amount of vocal resonance over the apex of the right lung—signs which were slight, but had not been observed before. The aspect of the case was very bad; and I advised his instant return to England. I ordered slight counter-irritation to the right chest, cod-liver oil, a light alkaline tonic, and gallic acid, every night. He did not return to England, but went to the banks of the lake of Luzerne, in Switzerland, and lived on milk. From this time he improved daily; and, after five weeks he returned to England. To my surprise, and that of Dr. Roe, he had gained flesh remarkably, the sweating was much less, his strength was vastly improved, and his spirits had risen. He had still slight cough and dyspnoea. The physical signs reported above *were the same*, and were verified by Dr. Roe. From that time to the present, he has sensibly gained strength, and improved in health. *He is not the same man he was before*, and cannot walk so far as formerly. The sweats have long since ceased, he has no cough nor dyspnoea, and he looks in perfect health. His weight is within a few pounds of his former healthy standard. A very careful recent examination (in March, 1856) *had failed to detect any physical signs whatsoever*.

Now this case seems to me to be a remarkable illustration of the blood changes which precede the formation of tubercle in the system, and of the constitutional disorder which is symptomatic of such a state of health. I will not say that you will meet with many such cases, nor do I desire to record it as anything more than a *type* of the blood disorder which often leads to tubercle. I beg your attention to the sequence of the symptoms. The *wasting*, as a primary symptom, the resulting debility, the succeeding sweats, the hæmorrhage under the skin indicating serious blood disorder, and relaxation of the capillaries, the rapid and extreme emaciation—all without physical signs of deposit in the lung up to a certain stage; then the well-marked signs of slight consolidation of the pulmonary tissue, coincident with cough and dyspnoea. The recovery is also very remarkable; but not without parallel, as I shall show. The question here arises, was this a case of phthisis? and speaking with diffidence when we have no opportunity of verifying the reply, I would answer, that in its history, its progressive symptoms, and its physical signs, we are bound to regard it as such. But can any amount of deposit of tubercle in the lung be ever completely removed? This is a question of deep importance, and demands a few observations.

The cure of phthisis, in its first stage of deposit in the lung, must depend upon two primary and coincident conditions. First, on a cessation of the blood disorder which has given rise to the formation of tubercle, a cessation of the constitutional state of health; and next, on the nature of the de-

posit in the lung. Where the latter is of the form resembling the purely strumous matter seen in the external glands, it may probably be resolved, or absorbed, just as we so often see take place in the cervical and other glands. If there be *identity* between the two deposits, as many believe, or even a strong *analogy* only, there is no reason, *a priori*, to doubt the possibility of a removal of strumous deposit from the lung any more than from the glands. But, again, where the deposit in the lung resembles rather the plastic result of inflammation than the slightly organised grey tubercle, it may be resolved by a process similar to that by which a pneumonia is removed.

There is also a form of tubercle which tends to cretification, and is expectorated in chalky masses, or as a horny matter; and, being got rid of, leaves the lung sound. In these two cases, cures of the tuberculous deposit may occur, and they belong to the class which my colleague, Dr. Thompson, has lately dwelt on from this place, which are characterized occasionally by wavy inspiration, and which, when persistent, are "*slow consumption*."

We have thus at least three conditions in which tubercle may exist in the lung, and where it seems capable of removal, arguing analogically and all of these are coincident with a cessation of the accompanying constitutional disorder which has preceded and caused the local disease. But, as practical men, you will not be satisfied with an abstract answer, nor deduce safety for certain of your patients, from a reply founded merely on theoretical reasoning. Do such cases occur daily?—and are they recognisable?

Now, I have asked many of our eminent physicians these questions, and I have received satisfactory evidences that cases are often met with in which the constitutional and local disease entirely disappears, the signs and symptoms vanish, and the health is restored; and my own experience entirely confirms this view: nay, more, I believe that, were we able to investigate the state of health of many of those around us, we should find that numbers had undergone or were undergoing slight attacks of tubercle, ending in recovery. That such individuals eventually sink under the disease is true, but that fact does not affect our question. We shall find, as we proceed, that a remarkable character of tubercle is, its appearance in *successive deposits*. In answer to the question—whether the physical signs of disease are ever wholly removed in the first, or stage of deposit? I would quote the following case, which occurred in my own practice, and was frequently seen and examined by one of our most eminent chest pathologists, Dr. Stokes, of Dublin.

C. D—, was a young lady, aged twenty-two, of delicate habit; had dark hair and eyes, and a well formed chest. A very distressing affliction occurring suddenly threw her into a depressed state of health. She lost flesh, and had slight cough, and a florid hæmoptysis to the extent of some ounces took place. The physical signs, as observed by Dr. Stokes, were a marked dulness of the percussion note over the left apex, and defi-

ciency of respiration in the same spot. She was cupped over this spot, and in the course of a few months the physical signs vanished, the cough ceased, and she partially regained flesh and strength. After some months, a second attack occurred, exactly similar to the first in *symptoms and physical signs*, and was treated in a similar way, and again the chest appeared on examination to be clear of any deposit. She was then sent to travel in Italy. I may here remark that every case selected by Dr. Stokes for foreign residence was carefully chosen, the absence of fever and of active signs of progressive disease of the lung being essentials before he sent invalids abroad. I received charge of the case in Rome, in 1843, by letter from Dr. Stokes. When I first saw her, she was free from fever, was in tolerable flesh, had a very slight cough, and there were no physical signs of disease. But I had an opportunity of seeing one of these attacks. She had again a florid hæmoptysis (about four ounces), and over the same spot the percussion note became dull, and the respiration rough and deficient. By treatment, cupping, and rest, she again rallied and the chest became clear. On her return to Ireland, I had an opportunity of meeting Dr. Stokes about this case, and received from him the above history, which was not unexampled in his experience. I may add that this lady died of phthisis about four years later.

I will only trouble you by mentioning a case which can surely be paralleled in the experience of all of us :

E. F.—was, in 1839, attacked by slight cough, after unusual application to study. He had previously lost flesh, appetite, and strength, and began to be slightly feverish. After some increase of cough, he expectorated several small, hard, cretaceous matters, and soon after regained flesh and health and lost his cough. He is now (seventeen years later) actively performing his duties as a clergyman, and is in very fair health, having no symptom of chest affection.

I have traced with some care and minuteness the first warnings or threatenings of the tubercular disease, as evidenced in a disorder of the system before any deposit has taken place in the lung, because this stage is of the highest importance, when viewed either with regard to its purely pathological or its curative import. I should be far from saying that every case is so strongly marked as the one which I have selected as an instance, for in certain cases the blood disorder is so rapid, the dyscrasia (as it has been termed) so sudden, that the local signs and the general symptoms are almost coincident; yet, as in by far the greater number of instances, the disease is of the slower and more insidious character, it may be almost affirmed that a diligent and informed seeker for the preceding constitutional derangement, would, if opportunity allowed, be rarely unsuccessful in detecting evidences of its approach.

The stage of deposit in the lung, long called *the first*, gives equal evidences of systemic disorder, which now, for the first time, becomes recognisable

by physical signs. The acute invasion of an extensive portion of the lung by tubercle is rare, but it is met with in practice. It occurs in those strongly predisposed by hereditary taint, and more commonly in the young. It may be fatal without a single chest symptom except dyspnoea, and in such cases so clearly evidences a lesion of the most intimate vital functions on which the nutrition of the body depends, that I think it worth while to record one case of it here.

G. H.—, aged seventeen, a delicate looking lad, narrow and shallow in the chest, came to Rome with his family to pass the winter. His parents had left England for the health of a daughter, declared to be consumptive, and had already lost three or four children by tubercular disease. This boy was apparently perfectly well, and his state of health had never excited uneasiness. He rather suddenly began to lose flesh and strength, and this proceeded so rapidly, that in the course of two months he had the aspect of advanced phthisis. His appetite was unimpaired, and he daily rode on horseback. He had no cough, no expectoration, no hæmoptysis. His pulse was small, weak, rapid. He began to have chills and moderate night sweats. At this time he was placed under my care. *The whole chest* was duller than natural on percussion, and this dulness increased perceptibly till it was very manifest. The respiration, at first deficient, was dry and tubular throughout; the voice bronchial. There was remarkable impairment of the *mobility* of the chest on both sides; it appeared fixed down. *Dyspnoea* on the slightest exertion was his only distressing symptom. He faded away rapidly, and died, having *never expectorated anything whatever*. Towards the end he coughed very little, not sufficient to attract the notice of any one, nor to distress himself. I examined the body twenty hours after death. The entire extent of both lungs was solidified by a deposit of grey and yellow tubercle throughout their whole structure.

I need not dwell on this case further than to point your attention to this most terrible form of tuberculosis, which saps the foundation of organic life, and kills, as one may say, by an entire decomposition of the blood itself. He died, wasted to an extreme degree, without the pre-existence of a single drain on the system, for the sweats were very slight, and there had never existed expectoration or diarrhoea, and these, as we know, are the great causes of bodily waste in consumption.

Now let us examine, in contrast to this, the more ordinary form of tubercular deposit—the formation of a few scattered grey granules, principally in the apex of one lung. To the careful auscultator the signs reveal it; but I will not now dwell on this branch of the subject, as they are familiar to all of us, and to my mind so distinct as to leave but few improvements in our practice to be expected, or even desired. But what are the symptoms? Infinitely varied, presenting every degree of vital disturbance, from the slight failure of strength to a hectic of great intensity. Is the amount of local disease the measure of the constitutional disorder?

The answer to this is the best illustration of the proposition which I have endeavoured to keep before you to-day. With the same extent of local disorder we have the greatest inequality in the systemic derangement; in one person we shall have high pulse, evening flushes and chills, and the early morning sweating, combined with a rapid wasting; in another, the deposit causes so little irritation that he neglects all prudential precautions; nay, in the same individual we shall see successive deposits in the lung accompanied by the most different degrees of irritation in the system; or, *more curious still*, we shall have a violent constitutional disturbance which shall disappear while the lung affection *remains as before*, evidenced by all the known physical signs! As cases are the best means of impressing facts on the mind I shall briefly state one, which illustrates the invasion of tubercle; its common constitutional symptoms, and the persistence of the deposit in the lung without softening taking place, while the health has been restored.

J. K—, aged twenty-seven, consulted me in 1846. He is a very well-built man; wide, deep chest; no predisposition to phthisis. Being fagged and out of spirits from pecuniary difficulties, he attributed a slight progressive loss of flesh to this cause. After violent exertion, he had a slight florid hæmoptysis, accompanied by pain of rather an acute character in the apex of the right lung. Febrile symptoms succeeded, and he rapidly lost flesh. He had night sweats to some extent, and a harassing cough, with scanty expectoration. Under the use of counter-irritation, a generous diet, horse exercise, and cod-liver oil, he slowly regained health. In 1848, two years later, he had again slight hæmoptysis, with a recurrence of the same symptoms, which again subsided. In 1855, seven years later, he was seen by me and examined with a view to effecting an insurance on his life. *This was nine years from the first attack.* He was in excellent general health; no cough; no expectoration; had gained flesh (though never emaciated) within the last year. The chest movements were perfect; the percussion note was still dull under the right clavicle, where there was very deficient and rough inspiration, and marked vocal resonance. This life was declined by two of the first London Insurance offices, the above history being attached to it. Up to this point we seemed to have but a trivial affection to deal with; but the last three months have altered this opinion. He has rapidly wasted; sweats at night; again coughs; has frequent slight hæmoptysis; and has lost strength considerably. The only physical sign is a fine moist crepitus over the spot where formerly some deposit in the lung was alone indicated.

I would here call your attention to the *progressive* character of the tubercular disease. There are *successive* attacks; it may be successive deposits, or more commonly a first deposit coincident with the softening and breaking up of one previously quiescent or latent. It would seem almost a result of accumulation of the material in the blood,

which is determined to a deposit by some extraneous circumstances; but how clearly does this point to a systemic cause as the origin and root of the affection. No merely local irritation could evince such uniformity of progress. An inflamed lung is blocked up, and is resolved, or suppurates, or remains indurated. But no subsequent changes, no new or subordinate action, are superadded—no sequence of similar attacks occurs; while, on the other hand, the degenerated blood which has produced tubercle has a fresh source in the disordered system, and throws off again and again the ill-vitalised product of its waste material, to which the former deposits may themselves have contributed; and hence the downward progress of our cases and their enormous fatality. But correct the systemic disease; invigorate the ill-nourished tissues by a supply of good blood; let the nutrition of the body be improved by good diet, fresh air, healthful and cheering occupations; improve the nervous and vital energies; and the local deposit formed at a time of exhaustion may remain quiescent for years.

I would here notice the occurrence of sweating in the first stage, before softening of the tubercular mass has begun. In noting a large number of cases at this hospital, I have remarked two periods at which this excessive action of the skin occurs. *One is very early in the course of the disease*; it may (as already stated) precede the physical signs, or it may take place when a deposit is already formed in the lung. The other is found as a concomitant of the softening process; and there is almost always a clear interval, it may be, of weeks or months between them. The first is not so manifestly preceded by chills or shiverings as the last, which is more truly of the hectic character. The first is more controllable by remedies, such as zinc or gallic acid; it is also more common as a single paroxysm in the twenty-four hours, and is not double, like the later sweating. Does not this early sweating indicate rather an effort to rid the system of some noxious matter, than a termination of a mere febrile access? Is it vicarious with the impeded lung exhalation? In any case its amenability to remedies which act directly on the constituents of the blood, seems to argue a cause deeper seated than that relaxation of the tissues by which it has sometimes been sought to be explained.

I will only briefly notice the stage of softening, for it is the period of the disease when all the symptoms are worst, and when the local affection and the constitutional or blood disorder exasperate each other. The ill-organised and crude tubercle has taken its first step towards decay, and involves the lung tissue in its destruction. The type of the fever is irritative; the local affection produces the kind of hectic which attends all extensive suppurations in important parts, and rapid pulse, chills, sweating, and marasmus quickly exhaust the patient. I would here observe on the specific character of these symptoms of irritative fever, which they share in common with that produced by any suppuration in vital organs. Whence the remittent character of hectic? and what are its

analogies? We may not be able to decide on its proximate causes, but its analogies class it with a disease of blood-poisoning induced by exposure to malaria. The differences would seem to consist in the shorter duration of the cold stage in phthisis, and the greater sweating in marsh fevers. You are probably aware that it has been asserted that the prevalence of malaria is antagonistic to phthisis, so that patients have even been sent to swampy districts to cure their consumption. I shall have occasion to notice this apparent antagonism between ague and tubercle, and will here only remark that during a residence of many years in the malarious plain of Rome, I never had occasion to see or hear of the occurrence of intermittent fever in persons already phthisical (who constitute a large proportion of the English residents there), while no year passed over without healthy persons suffering from malaria. The meaning which I desire to extract from the fact here is only an inference that both the diseases of phthisis and ague are caused by blood poisons (though of a different character), and that this very antagonism, if it do exist, rather argues in favor of this view; for other analogies will readily be found in the action of different poisons on the blood in neutralizing each other, such as mercury and syphilis, sulphur and psora, arsenic and certain skin and malarious diseases.

We are bound, however, to keep well before us the fact that in this second stage of tubercle, where softening occurs with its concomitant hectic, we have no means of ascertaining the cause without having recourse to a careful physical examination. The same symptoms may arise from a diseased joint, or a chronic abscess, from a suppuration in the liver, or a pneumonic abscess in the lung, or from an empyema. It is therefore only by a careful correlative study of the previous history of the case, with its existing physical signs, that we can arrive at an accurate diagnosis.

The third stage of phthisis, or that in which the disease in the lung has produced destruction of the proper pulmonary tissue and resulting excavation, is very full of interest to us. The physical signs can alone declare its existence; for, as we have already seen, symptoms of every degree of severity, or death itself, may have occurred in either of the earlier stages. Excluding the cases of rapid consumption, we might say that the slow occurrence of excavation is evidence of a great curative effort made by the system to isolate the local disease, and throw off the tubercular matter. It is not necessary for us to assert that this is the only, or even the principal, stage in which a cure is effected, for I have before shown certain reasons for believing that a deposit of tubercle in the first stage may be removed; but surely Laennec had a great pathological truth in view when he stated this to be the period and manner of a natural cure.

In symptoms this stage may resemble any of the former; it may rapidly terminate the case by extreme hectic and marasmus, or it may, after many attacks of irritative fever, leave the patient

in tolerable health, and with but few of the marks of a fatal affection visible in his aspect, or sensibly diminishing his vital powers. Let us regard the two cases attentively.

In the rapid wasting, cachectic appearance, extreme vital exhaustion, and miserable end of the first class of patients, we see every evidence of a gradual and increasing blood contamination, poisoning life at its nutritive sources, and reducing vital powers till extreme exhaustion ends the scene. Death in these cases is not from dyspnoea or apnoea, for many patients live with a larger amount of lung disease than is often found in those who die. Here, again, the *extent* of the local affection is no measure of the urgency of the case. It is the degree and amount of blood contamination, and of the consequent exhaustion of the sources of nutrition, by which the scientific physician will guide his prognosis. If the original tubercular taint continues, the local disease furnishing, by means of the veins, a constantly fresh fountain of contamination to the blood, as indicated by successive deposits in the lung, the larynx, and the intestines, and seen in the enormous and increasing expectoration, the harassing cough, dysphagia and aphonia, and in the colliquative diarrhoea, we have no hope to offer. But if, on the other hand, the vital powers rally, and the local affection becomes circumscribed, we have an admirable picture of the effort which the system can make to struggle against a vital injury, and to throw off an irritative element from the blood.

I know of no pathological state more gratifying to study than some of these chronic cases of cavity in the lung, which some have unthinkingly called the opprobrium of our art. The physical conditions should be clearly borne in mind. We have a one-sided affection, circumscribed and well-marked in extent. On its margin there is no evidence of softening; no soft crepitation, nor evidence of more than a consolidation of the lung. Below the gurgling, or pectoriloquy, or cavernous blowing, we have clear and healthy respiration, and the opposite lung is unimpaired. We are all familiar with the appearances of these cases after death. There is a cavity of irregular shape, and generally lined with false membrane, which is continuous with the bronchial mucous structure. Within it, we may find those hardened bands which are either the remains of bronchial tubes or bloodvessels obliterated. Carefully covering in this cavity there is an indurated wall of condensed pulmonary structure, which, by a process analogous to inflammation has been thrown up as it were to prevent the extension of diseased action; while, covering the portion of lung so excavated, and which is generally superficial and near the apex, there is found a chronic thickening of the pleura, with dense adhesions, binding it firmly to the costal parietes, impeding their mobility and forming an admirable defence against injury from without. With such an isolation of local disease, we have all seen patients supporting life, and even entering into its most active labours for years, and although the ultimate contraction of such cavities

and their obliteration be a rare occurrence, we know that it is a possibility, and we have reason to believe, a more frequent pathological event than has been hitherto credited.

It is important to notice here, that although a very great rally may be made by the system which has resisted an attack of tubercle ending in excavation, yet that there is a limit to the extent of recovery, so to speak. The patient never regains fully the flesh which has been lost; but although he may be able to follow the ordinary occupations of life, there are certain drawbacks to his convalescence, which may be stated to be, that neither in muscle nor in vital power is he ever equal to his former standard of health. This state will be better appreciated if we regard its probable cause. The lungs, as organs serving a vital purpose in the economy, may be presumed to be in volume and capacity exactly suited to the requirements of the healthy body—in other words, the oxydizing and exhalent functions are in proportion to the wants of the system. And so of their supply of blood; an exact proportion must be observed between the systemic and the pulmonary circulation, or the healthy par of the economy is overbalanced on one side or the other. Now, with diminished respiratory volume there is necessitated a diminution of the daily waste of the carbon in the system, which otherwise could not be got rid of, but must be thrown on other organs in excess, or remain in the blood as a poison. And so of the water, which is ordinarily carried off in part by the pulmonary exhalation, though it finds outlets by the kidneys and skin. In all cases, however, of loss of respiratory surface there is wasting of the tissues, an obvious means of restoring the balance between the body and the decarbonizing organs, without which any approach to healthy action would be impossible. This wasting is also well seen in congestive bronchitis, the system being reduced to a balance with the lessened aerifying capacity of the lung, and till this balance is attained in acute cases the suffering is extreme. The advanced stages of phthisis well illustrate this point. Where the marasmus is extreme, the exceedingly small pulmonary surface which remains in action seems sufficient to supply the diminished wants of a wasted body, and the toleration of life with so exceedingly limited a respiratory action, and so little real distress in some cases, can only be explained in this manner.

The sweating of phthisis has surely a similar meaning. First, it acts in reducing muscular volume to be altered respiratory capacity; and secondly, it is vicarious to some extent of the exhalant function of the lung, with which local disease has interfered. The average difference of the vital capacity of lungs in health and in phthisis (all stages being taken together) was found to be 93 cubic inches, the healthy standard being 222 inches, and the phthisical 129. (Experiments on the Spirometer by Dr. Hutchinson at this hospital—total number of cases examined, 415.) This enormous disparity will serve to account for the necessary systemic disturbance from the lessened respiratory volume.

There are other cases which linger out with less vigour than these, but with great prolongation of life. I will briefly mention one which has been under my own observation for sixteen years, and which has been examined and could be attested by many of the most eminent practical authorities in the profession.

A lady, now forty-eight years of age, without any inherited tendencies to phthisis, was, when eighteen, attacked with all the symptoms of consumption, having had frequent hæmoptysis, cough, purulent expectoration, and hectic. She exhibited the ordinary symptoms of chronic phthisis, with fluctuations in her state of health till 1842, when I saw her, and had the advantage of Dr. Williams's opinion. He recognised a considerable excavation in the apex of the right lung, and signs of commencing softening in the left. I myself took charge of her, in 1842, for a journey to the south of France and Italy, but without any hopes of even prolongation of life, the wasting being progressive, and the hectic severe. In the spring of the following year, her health got rapidly worse, the marasmus reached the third stage, she was confined to a couch, expectorated profusely, and had excessive night-sweats. At this time a cavity formed in the opposite lung. In this condition, worn out by fever, and with double and extensive excavations, which gave rise to an almost daily hæmoptysis, it is no wonder that several distinguished physicians prognosticated a speedy fatal result; yet she rallied, and after a residence of four years in Italy, she returned to England, and now resides in London in the winter. Her present state is this:—She has a daily copious expectoration, and frequent hæmoptysis. She is considerably emaciated, and has the aspect of chronic phthisis. On exertion, she has great dyspnœa, and going up-stairs is very painful to her, yet she can walk more than a mile. Long journeys always agree well with her. She has frequent attacks of severe hectic and sweating, which is her principal distress. Her chest is very remarkable: anteriorly, it is flattened down under both clavicles, and immovable on respiration. Under each clavicle, there is an extensive cavity, with the ordinary signs. Posteriorly and above, there are the signs of cavity, as in front: but lower down there is a remarkable provision for respiratory compensation most unusual in phthisis. The lower portion of the chest at the back is arched out, and barrel-shaped, as in emphysema; but it differs remarkably from emphysema in this, that the respiratory murmur is loud, and even puerile, proving that the air-cells, though enlarged, have retained their elasticity; while the opposite condition prevails in emphysema. In fact the respiratory space is at the base of the lungs, both apices being destroyed. In this lady, there exists that remarkable vital vigour, without which such an amount of local disease could not have been tolerated; and she combines with considerable mental powers and sanguine temperament the uncommon addition of a mind free from that concentration on the variations in her health which so exasperates chronic affec-

tions. Her digestion is good, and there is no reason to suspect tubercular deposit in any other organ than the lungs.

With this case, I would draw my observations to a close for to-day: but before concluding, I desire to impress on you the object of my thus recalling your attention to facts in the history of phthisis which you will all consider old. It is, that we may together stand aside, in these days of hypercritical chest diagnosis, and regard an old picture in a new light, renewing our acquaintance with its familiar features, in order to correct, by a general view, the aspect as it may have assumed when studied too much in detail; it is, that we may not fall into the error of endeavouring to appreciate the form, the limits, and the import of a grave affection by a single sense only, but rather with every inlet to knowledge wide open for the reception of truth; and that so, if we cannot answer the sphynx question which is daily devouring our population, we may at least place ourselves in that philosophic attitude which, by adopting general and enlarged notions of disease, prepares the way for scientific advances, if it does not itself lead to important discoveries.

LECTURE II.

GENTLEMEN,—When we last met, I endeavoured to illustrate, by a rapid survey of the progress of phthisis, the fact that it is a disease of the system, of which the lung affection is but an indication and a stage. We observed, in the antecedent period to that of deposit in the pulmonary structure, when symptoms alone reveal the threatened attack, very strong evidence that the blood itself is the seat of the disorder. We remarked further proofs of this in the *sequence* of pathological phenomena in every case, in the sympathies of the circulating and nervous systems, in the successive deposits in the lung, and in the remarkable difference which is found in the toleration of the disease in various individuals—some sinking rapidly in the first, and others outliving the excavation of the last stage. We observed that a similar amount of local disease of the lung, when due to inflammation, or a compression of the pulmonary space by liquid effusion in the pleural sac, is not followed by the same constitutional disturbance as a tubercular deposit to the same extent. Finally, various cases were cited which illustrated each period of the disease, and evidenced the progressive stages of blood contamination which lead to a fatal result, or which illustrated, on the other hand, the power of the system to tolerate an extensive local destruction of the lung, when the diseased material of the blood has exhausted itself, and the softened tubercle has been broken up and expectorated. In the interesting local changes which surround such a “tolerated” cavity, it was also sought to find proofs of the comparatively harmless character of a simple lesion of the lung, when the disordered state of the blood has ceased. Without

undervaluing the important assistance which auscultation has conferred on diagnostic medicine, it was, I trust, made sufficiently clear that there may be a phthisis without any physical signs whatever, and that, on the other hand, the most alarming physical signs may be present, and the patient, present but few symptoms of disordered health. It was thus insisted on that in no case can the physical signs *alone* be the measure of the danger, and that even neither the quantity nor the stage of lung disease indicate, *per se*, any invariable corresponding amount of systemic derangement.

I would to-day proceed to consider what further arguments are to be found to illustrate the constitutional origin and course of the tubercular disease, in certain of its local symptoms, in the positive and negative evidence which has been adduced regarding its *origin*, and in the contrasts which it offers to certain other chronic affections. The diseases which seem incompatible with, or which are rarely found allied to, tubercle, will be next found to furnish some interesting points of antagonism, and to illustrate the general principle laid down. Finally, the effects of remedies will be noticed as bearing on the same point. Having a large number of subjects to touch on, I would beg your indulgence for the hasty manner in which they will be brought before you; but to such an audience as the present, it is rather sought to throw out general views, illustrated by the reading and experience of all of us, than to enter on details which might possibly be irrelevant or prolix.

It will have been remarked that, in my former lecture, but slight reference was made to symptoms which were very plainly in connexion with the local disease when established in the lung, our object being rather to regard phthisis in its general effects on the system, and from these to deduce evidence of its being a constitutional affection. Yet the local symptoms, inasmuch as they are characteristic of a deep disorder of the blood itself, and of resulting impairments of nervous and vital actions, have a general as well as a limited meaning, and, if carefully studied, can throw much light on the questions which we are now considering. Let us examine, as examples, the cough, the hæmoptysis, and the pains which occur in phthisis.

Louis remarks, that cough, not preceded by coryza, is characteristic of phthisis. What is its character?

In the early stages it is short, dry, and irritating, and generally referred by the patient, as pointed out by Graves, to the *trachea*. It occurs at all times of the day, or at night, and is obviously caused by tubercular deposit, irritating the bronchial membrane. The type of all cough is bronchitis; and we have no reason to believe that the proper capillary structure of the lung is endowed with very sensitive nervous powers. In the stage of softening, the cough is expectorant, and becomes more periodical. It attends on the hectic exacerbation, and is worse at night and towards morning. It is, therefore, we may presume, somewhat dependent on the same causes which induce hectic, as well as a necessary act to get rid of secre-

tion in the tubes. It is rarely paroxysmal, suffocative, and in long fits, as in bronchitis, unless that affection or laryngeal disease be superadded. The known effect of sedatives, as opium and conium, in relieving it—medicines which have a systemic action through the nervous centres—point to the intimate vital relations of this symptom.

Again, in some patients there is scarcely any cough, and the moderate amount of it in this hospital, which is kept at a pretty uniform temperature of 64° is the subject of remark by every visitor. The act of expectorating is not enough, properly so called. Contrast the hysterical bark, or the laboured suffocative fit of bronchitis, with the cough of phthisis. The latter has its analogies in the same symptom as caused by an irritative vital lesion, as hepatitis and intestinal worms. The hectic caused by a suppurating joint will often be accompanied by cough, which frequently ceases at once after amputation. These are interesting facts, and argue, it would appear, something more than a local cause for this symptom. The *hæmoptysis* of phthisis has long been regarded with much interest. Very few now look on it as a cause of tubercle; but it has taken its place amongst the consequences of that disease. If phthisis were congestion, the effusion of blood would be a primary condition, which, if prevented, would ensure the safety of the patient. Pulmonary apoplexy, with frothy, florid hæmoptysis, is no uncommon case, and is often recovered from. Within a few months I have had under my care such a case, in which there was extensive dulness over both lungs, copious spitting of blood, but ultimate complete recovery, the chest becoming resonant, and the health restored.

Again: I am now attending a case of injury of the lung from fractured ribs, in which hæmoptysis has occurred for many months at short intervals, but there is neither sign nor symptom of tubercle. Hæmoptysis, therefore, is not a causative agent in phthisis; it is a sequence, and easily explained by the deposit in the lung. In this hospital it has been found to occur in about sixty-three per cent. of the cases. It is, therefore, a valuable indication of phthisis; but how often is it not vicarious in females? It must plainly be weighed with other symptoms and collated with the physical signs, before it assumes any value as a symptom. But has it any further vital meaning than the effusion from a vessel which has been pressed on or corroded? I believe that such a meaning may be traced to an effort to reduce the pulmonary circulation to a standard compatible with the diminished capacity of the lung; and in favour of this view it is sufficient to recal the relief which all the symptoms often undergo after a hæmoptysis.

With an oppressed circulation and an altered or lessened nutrition, the vitality of the lung, and its important aëri-fying functions are deteriorated. With diminished capacity for receiving air, the oxygenating process is lessened, and the decarbonising and exhalant functions are impeded. The effects on the system are early seen, and are observable first in the wasting of the tissues. That a

balance necessary to the complete health of an animal must be maintained between the systemic and the pulmonary circulations, is a point of much interest. To maintain it under these circumstances of an altered capacity for respiration, and where secretion does not relieve the irritated lung, a reduction, of the mass of the circulating fluid and of the solids of the body becomes a necessity. The mal-nutrition has preceded the deposit of tubercle; its continuance reduces the requirements of the system for a volume of respiratory space which is no longer obtainable, and thus the early adjustment of the balance leads to emaciation. The hæmorrhage, where existing, has tended to the same result, and in both we can recognise (as in all diseased action) an effort of Nature to relieve and counterbalance, when she cannot cast off, a morbid product.

The pains experienced in phthisis are of a very wandering and uncertain character. They may be present or absent, and are always deceptive, unless when caused by pleuritic inflammation and evidenced by its accompanying signs. They are felt as often in the unaffected as in the affected side; are frequently in the base of the lung, the apex being alone diseased; and are, therefore, to be referred rather to a lesion of innervation than to local disorder. Their occurrence in the calf of the leg, in the top of the shoulder, and in other distant parts, points to a systemic origin. On the whole, too, they are best relieved by general sedatives, such as morphine.

I would now consider some of the facts which have been adduced with reference to the much-disputed question of the *origin* of phthisis from such causes as climate, season of the year, occupations, misery, bad or insufficient food, &c. Now these points demand, more than any others, a very large experience, such as alone can be furnished, by institutions like the one in which we are met, to skilled and unprejudiced observers, or by the statistical results of extended observations in different countries. We are as yet without that finished arrangement of figures which genius combines from numbers to illustrate abstract questions, but there is sufficient to be found for our purpose in the records of this hospital, and in the labours of many intelligent inquirers in every civilized land.

It is first to be observed, that the great mass of this evidence is *negative*; and we may start with this proposition, that all experience shows, that however the disease of tubercle may be found to predominate in any one class, or to flourish under certain influences, yet that its universal prevalence in all localities, in all occupations, and under every variety of physical and moral conditions to which man is subject, proves that to none of these circumstances can we with reason refer its invasion. It is true that some states of social life may aggravate, and some retard it, but as causes—we might almost say, as predisposing causes—all such conditions are, when analyzed, found to be insufficient for its production. In other words, you may expose thousands to the same bad climate, the same depressing occupations, the same social misery, and the same

tions. Her digestion is good, and there is no reason to suspect tubercular deposit in any other organ than the lungs.

With this case, I would draw my observations to a close for to-day: but before concluding, I desire to impress on you the object of my thus recalling your attention to facts in the history of phthisis which you will all consider old. It is that we may together stand aside, in these hypercritical chest diagnosis, and regard picture in a new light, renewing our acquaintance with its familiar features, in order to general view, the aspect as it may when studied too much in detail may not fall into the error of appreciate the form, the limits grave affection by a single with every inlet to know reception of truth; answer the sphynx of our population, in that philosopher's general and the way for lead to imp

undervaluing the cultivation has been under my own care in this which I could get reliable information and the following results:

Spring			
March,			
April, May,			
In the summer			
quarter, June,	"	75	"
July, August,			
In the autumn			
quarter, Sept.,	"	141	"
Oct., Nov.,			
In the winter			
quarter, Dec.,	"	117	"
Jan., Feb.,			

to
y

It is a disease of universal prevalence; in the same proportion; in the reception of truth; answer the sphynx of our population, in that philosopher's general and the way for lead to imp

In Canada, the mortality from phthisis was 6 per 1000 annually.

In Bermudas, the mortality from phthisis was 8 per 1000 annually.

In Malta, the mortality from phthisis was 6 per 1000 annually.

In England, the mortality from phthisis was 6.4 per 1000 annually.

The difference to be noted here is very slight, while the range of temperature and the variety of climate is extreme, the prevailing atmospheric influences of the most opposite character, and the range of latitude very great. If we are to seek, then, in climate for an existing cause of phthisis, we shall be at fault. The remedial effect of climate is another question, which I shall afterwards notice. Now, what effect has season of the year on the commencement of phthisis? We reside in a very fluctuating climate, where the ranges of temperature are very great and the changes sudden, and above all, where moisture to a high degree is found in the atmosphere; and were consumption a disease of inflammatory origin, such as bronchitis, we should expect to find that it commenced at those periods of the year when the air is most cold and moist, and all the atmospheric influences most predisposing to irritation of the pulmonary organs. With a view to elucidating the effects of season of the year in inducing phthisis, I examined carefully into the history of 487 cases of well-marked

We thus see that the spring and autumn originated by far the largest number of cases, then the winter quarter, and finally the summer. Now, the winter quarter, which ranks *third* in the list, is the period of the year at which most cases of bronchitis commence; when, in fact, the influences of weather and its changes have most effect. The spring and autumn, however, seem to hold pre-eminence, and the summer stands at the bottom of the list. As these figures have been prepared impartially and with care, I think them worth presenting to you; but allowing even for the deduction that the same season which produces the highest degree of irritation in the bronchial membrane only ranks *third* in the production of phthisis, we may perhaps say that they rather illustrate my general proposition, that *season of the year*, as an originating agent, has not much to do with the essential cause which gives birth to consumption. As regards the season of greatest mortality in phthisis, it has no relation to our subject, and so manifestly bears on other questions, such as the complications of the disease, and the vital resistance made by different individuals, that it has no place in this argument, nor would it be found in any degree to illustrate this discussion.

Next, what has sex to do with the production of phthisis? A very good answer to this question is to be found in the fact that Louis states that "it seems difficult to question the fact, that, in France, at least, and more particularly in Paris, phthisis is considerably more frequent in females than in males." Dr. Horne, in his Report of the Royal Infirmary of Edinburgh for three years, (1834—36,) states that, out of 297 cases, 185 were males, and only 112 females; while the first medical report from this hospital in 1849, gives 61 per cent. males and 32 per cent. females. Again, for the provinces, the Registrar-General's Report is 28 per cent. females and 24 per cent. males. Thus we have a greater number of females affected in Paris and the country towns of England, and a much larger proportion of males in London and Edinburgh. From these numbers, then, there is nothing to be gained with reference to the question of sex, if it be not that other social causes, dependent on the aggregation of large numbers of persons together in great cities slightly turn the balance against the male

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are met by a mass of conflicting
Louis says, “that an analysis of his
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dly in strong as in weak individuals—nay,
en more quickly in the former than in the latter;”
and further adds, that “he feels it to be his bound-
den duty to express his doubt as to whether the
popular doctrine, that the weak constitution pre-
disposes to tubercle, be true.” In this hospital, the
daily practice affords grounds for the same doubt.
Did opportunity permit I could present to you
individuals of the most robust build, with large and
deep chests, and great muscular development, who
have tubercular cavities in the lung. Their phys-
ical condition attaches them to the class which I
have designated as “tolerated cavities.” They are,
naturally enough, amongst the out-patients, having
no reason to come and reside in a hospital, and
they follow their usual occupations with somewhat
less of vigour than they would have done before
the tubercular attack. I may remark here that
many such cases present themselves but once or
twice only in the out patients’ department, some
coming long distances from the country to have an
opinion, after which we lose sight of them. They
are, however, registered, and carefully noted; and
I could, perhaps, produce a history, written on
the spot, of twenty or thirty such cases, from my
books.

My colleague, Dr. Cotton, has observed, “I have
seen many cases of phthisis overlooked, in conse-
quence of a well-formed, and to all appearance,
healthy chest, having been deemed incompatible,
not only with the existence of pulmonary tuber-
cles, but even with the tuberculous diathesis. The
life-guardsmen, the pugilist, the blacksmith, &c.,
notwithstanding the fully-developed chests which
their several occupations induce, are, *cæteris pari-
bus*, quite as liable to the inroads of phthisis as the
mechanic or artizan whose daily task leads to the
opposite result.”

Now, such is our experience here; and it is at
least negative as far as regards the influence of the
weak habit of body.

Occupation next stands on our list. Now this is
a very important subject, and I confess that it needs
more investigation. I have tabulated the results
of an examination into this subject, made by my-
self from my own cases at this hospital, and as it
has been done with care, I offer it as a contribution
to the large and daily increasing mass of statistics
which we are collecting.

Occupations in 652 Cases of Phthisis,

	Cases.
Domestic	145
Servants	95
Open-air pursuits—Gardeners, Cab- men, Grooms, &c. }	62

	Cases.
Needle-workers	52
Labourers	45
Carpenters	43
Shopkeepers	44
Shoemakers	27
House-painters	20
Clerks	20
Teachers	16
Printers	18
Tailors	12
Policemen	8
Millers and dusty occupations	7
Beershop-keepers	7
Bakers	6
Sailors	6
Hairdressers	4
Soldiers	2
Glassblowers	2
Butchers	1

You will observe, from the table, that I have
noted 652 cases of phthisis. They were all well
marked, and I have excluded from the list those
on which there was any doubt as to the nature of
the affection. It is remarkable from this, that the
domestic, homely, and sedentary occupations vastly
outnumber all the rest; for if we throw together the
domestic cases (or those who are attending to house-
hold concerns, and who are generally females in a
class of life which demands that their time shall be
spent with their families indoors), and the servants,
needle-workers, those occupied in shops, tailors,
shoemakers, and clerks, we shall find that they
amount to 393 out of 652, or more than one half
the entire number—seven occupations furnishing
this result, out of a total of 22. I shall have occa-
sion to notice again how this fact helps us towards
a solution of our question of the nature of phthisis,
and will only stop here to remark that sedentary
pursuits *imply two things pre-eminently—want of
fresh air, and a minimum of muscular waste and
renewal*. It is also important to observe, what has
often been remarked here, that *butchers* are singu-
larly exempt from phthisis. In my table only one
appears, and when we consider that this class is
remarkably supplied with abundance of animal
food, which they generally consume twice or thrice
a day, that their shops are open to the air, and
that their business necessarily requires much exer-
cise and driving about, we may gather how impor-
tant an influence a highly-stimulated nutrition, and
these conjoint conditions, exert in opposition to any
chronic disease. Dr. Copeland says that he would
advise any one threatened with phthisis to become
a butcher; nor can we wonder at this when we
remember the well-fed specimens which may be
seen in this metropolis, in their shops. It is fair
to state that this opinion is opposed by Louis, who
says, “that out of thirty phthisical cases, only
twelve had been badly nourished, and eighteen had
been well-fed; yet the disease occurred at almost
identically the same period in both—a result which”
(he says) “afforded me no small surprise.” In
reply to this, we may observe, how limited was this

experience as compared with that which we can offer here!

The influence of anxiety, the depressing passions, of social misery, of a life of seclusion from the healthy stimulus of society, of habitual intoxication, of chronic indigestion, and of a number of other causes allied to these, is recognisable in many of our cases, and will ever form a subject of deep study to the scientific physician in his investigations into the origin and indicated treatment of every individual case; but until we can ascertain that these causes tend to produce phthisis more than other chronic disease, we are much in the dark respecting their influence and their import in connexion with consumption. But it may be remarked, that they are causes which, as a class, affect the *vitality* of man, the nervous controlling power which presides over organic life, and that they are intimately connected with the last changes which elevate aliment into tissue, and with the functions of secondary assimilation which lie at the root of organization. They are of deep importance, and are receiving daily more attention; and in this hospital we are, I trust, accumulating materials for their elucidation, but their consideration is outside our present object, and the limits of a lecture would but feebly outline the truths of which we are in possession regarding them. So far we may state, that our present knowledge is insufficient to class them as originating causes of tubercle; that the same conditions will produce other widely different affections; and that while this is the case, it would be incorrect to attribute much value to them as causative agents. Phthisis may be found, and is found, in the well-ventilated, well-warmed, and luxurious dwellings of the rich, where food of the best kinds is unlimited, and where hygienic measures are the rule of daily life. It is a mistake to suppose that over-luxury involves, now-a-days, so many breaches of sanitary laws as it formerly did. The truth is, that our middle classes are in the most favourable condition for health, and extreme cleanliness, good food, regular exercise and sleep, and yearly changes of air, are the habits of thousands in this metropolis. Are they exempt from phthisis? Or can we select the numerous cases which occur in this class and assign to them their predisposing cause in the breach of any hygienic law? If we know anything which wealth can buy it is this—the timely and prudent requirements which, in the form of wholesome food, fresh air, and frequent changes, may assist the vital energies of the delicate and scrofulous child; but with every resource which money can command, can we always, or even often, succeed in our object?

To select from our professions those which seem most prejudicial to health is indeed not difficult, but we want here the large statistical numbers which such institutions as this supply. Yet, perhaps, if we said that the clergy and our own profession hold the first places in the fatal list, we should not be far wrong. And if we argued from this, that those who are hardest worked in the great struggle of life, and whose energies and feel-

ings make daily demands on the *vital power* of which I have spoken—while their bodily exertions are often pushed to fatigue—are undergoing the conditions most favourable to the production of tubercle, we should not greatly err. It has been remarked on this subject, that the main element of success in professional life in London is health for the first fifteen years. These are the fatal years—the fatal period of life as regard phthisis, when the inherited taint, or the disordered blood, leaves the system unequal to the requirements of hard work of mind and body. Why are they the fatal years? They are the period at which the waste and repair of the tissues is most active; when growth has ceased, but nutrition should be in the greatest vigour as a *sustaining* agent of the animal system. They stand intermediate between the mere perfecting of the vital machine and the time when organs which have been fully worked repose, as it were, and permit of an accumulation of the material of the fabric. The deposit of fat which takes place in most men after forty years of age, marks this transition. The stage of growth is eminently fatal in the phthisical habit; the nutritive period second in danger; and middle life to age constitutes the third, and least dangerous. All statistics, in every climate and under every physical and social condition, tell this story; and we can learn many deep truths from a study of these successive periods and this sequence of processes in the animal history.

Now this cursory view of the influence of predisposing causes, however it may fail to account for the tubercular crisis, has an important bearing on our proposition, that phthisis is essentially a *systemic disease*—that its origin is not local, but connected with the most deeply-seated vital processes. Let us look next at the evidence relative to its origin from local inflammatory causes. There is no reason to believe that a simple catarrh leads to phthisis. Its commencement, at the season of the year when bronchitis is most commonly at its minimum, as shown by the tables before referred to, is opposed to this view. Besides, the cough is not the earliest symptom, and there may be a consumption without any cough.

Pleurisy, with effusion, often leads to tubercle, now in the affected side, and occasionally in the opposite; but this is an exception. Out of 200 cases of pleurisy observed by Louis, not one left behind any trace of tubercle. And so of pneumonia; out of 72 cases recorded by Grisolle, only four had previously—years before—had inflammation of the lung. That inflammatory symptoms arise in the course of phthisis is undeniable, but they are rather congestive than active, and leave no traces after death of true inflammation of the proper lung tissue. The local complications of phthisis are generally pleural, and tend to insulation of the disease, when limited, as it commonly is, to the parts near the deposit.

(To be continued.)

Original Papers.

CASES OCCURRING IN THE SURGICAL PRACTICE

OF

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(Concluded from page 345.)

CASE 5.—*Osteo-Cephaloma of the Tibia; Amputation of the Thigh; Recovery; Recurrence of a similar Growth in the Thoracic Cavity within twelve months from the date of the operation.*—E. M'I—, aged thirteen, native of Fifeshire, admitted to the Royal Infirmary, under the care of Mr. Spence, April 4th, 1855. Her general health has never been remarkably robust, but she had never suffered from any distinct affection until four months previous to admission, when, without any apparent cause, the head of the left tibia became considerably enlarged, attended with most excruciating pain, most severe during the night. The enlargement rapidly increased in bulk, and, without having undergone any previous treatment beyond poulticing and fomentations, she was sent to the infirmary. On admission she was extremely exhausted from pain and consequent loss of sleep; and as the rapid growth and general character of the tumour sufficiently indicated its malignant nature amputation of the thigh was resolved upon. No enlargement of inguinal glands.

April 7th.—The patient having been placed under the influence of chloroform, amputation of the thigh was performed at the junction of the lower and middle thirds. Very little blood was lost during the operation.

14th.—All the ligatures except two have separated. Patient doing well in every respect; healthy discharge from stump.

25th.—Has had a slight attack of bronchitis, for which she was ordered an expectorant mixture.

May 1st.—Cough relieved. The last ligature came away to day.

12th.—Allowed to sit up.

23rd.—A congenital femoral hernia on right side, which hitherto has given her little annoyance, came down to-day, and was reduced with some difficulty under chloroform.

The hernia caused a considerable amount of trouble for some time, and during the first week of June the protrusion became so hard and painful, while at the same time several of the lymphatic glands in the groin became so enlarged, that it was feared an analogous growth to that on the tibia was about to form here. The pain and swelling however, speedily disappeared, and she was dismissed well in every respect on the 18th of June.

The tumour which was found to arise from the head of the tibia immediately above the spine, was

about the size of an ordinary cocoa-nut, very elastic, and of indubitably malignant nature.

The very excellent state of the girl's health when she left the hospital, better, indeed, than she had enjoyed at any previous time, together with apparent immunity from any similar affection, gave reasonable ground for the hope that the benefit derived from the operation might prove permanent. These hopes were not realized, as in the month of April of the present year, exactly ten months after her dismissal, she reappeared in the hospital, this time suffering from a chest affection, the nature of which, and her condition on readmission, will be best learned from the following history of the case, taken at the time:—

Re-admitted on the 24th of April, 1856. The patient states, that after leaving the hospital she continued in good health until the cold weather of winter set in, when she had a return of the bronchitic attack, mentioned as occurring during her convalescence. A fortnight ago she began to suffer from pain with slight swelling in both forearms and in the right leg, her urine at the same time becoming scanty and high coloured, while micturition was frequently and painfully performed; her cough at this time became more troublesome, and she suffered considerably from dyspnoea. It was, however, the pains in the arms and leg that principally induced her to return to the hospital. On admission, some oedema was found along the right shin and on the dorsum of both hands. The swollen places were very tender on pressure. Urine scanty, specific gravity 1024, containing a large quantity of lithates. Chest on examination presents absolute dulness below the left clavicle, with marked resistance to the finger on percussion, and total absence of respiratory murmur; the dulness extending to the upper edge of the third rib, but not quite to the sternum. Below this, percussion is markedly tympanitic (stomach note) as low as the diaphragm, and this extends across the sternum over its upper third, and down the right side as far as the lower edge of the second rib. Over the whole of this clear space respiratory murmur is entirely wanting. No cardiac dulness anywhere; but the heart is felt to beat to the right of the sternum, between the third and fourth ribs. Cardiac sounds healthy. Right side of chest rather unduly resonant. No pulsation to be felt in any part of the chest. Left side particularly above, expands less freely than the right. No difference in measuring the sides. Posteriorly, the right side is normal on percussion; left side dull, absolutely below the sixth rib, comparatively above. Respiratory murmur absent at the lower part of left side, very scanty superiorly, and accompanied by coarse mucous râles, which are also present on the right side posteriorly and below; no increase of vocal resonance on the left side; vocal fremitus absent on the left and very indistinct on the right side. No bulging of intercostal spaces on the left side. Decubitus equal on either side. Nothing audible on Hippocratic succussion. Pulse 118, equal at both wrists, synchronous with systole of heart. Hepatic dulness

diminished in extent. Expectoration frothy and clear. She was ordered a mixture containing liquor potassæ, with the compound tincture of camphor, and some other expectorants.

April 26th.—Rather easier. A blister was applied over the front of the chest, as her cough is still troublesome.

May 5th.—She now finds it impossible to lie on the right side, although the severity of the cough is lessened. From the anterior surface of the chest being raw with the blister, it is impossible to examine the chest accurately, but it appears that the portion formerly tympanitic has now become absolutely dull.

7th.—Cough again very constant and severe. Decubitus entirely on the left side. On making a physical examination of the chest to-day, the dullness below the left clavicle was found to have extended over the whole of the surface formerly tympanitic, reaching across to the right side of the sternum as far as the middle of the right clavicle, where the percussion sound becomes normally clear; not a vestige of respiratory murmur can be heard over this tract, nor is there any vocal fremitus; but the heart sounds are heard distinctly, and may be felt also. Posteriorly, the dullness on the left side is still more marked than before; and at the lower angle of the scapula, vocal resonance is slightly ægophonic. No bulging of intercostal spaces on the left side, except the second anteriorly, which, with the second and third ribs, appear to be somewhat protruded; and it is here that the communication of the heart sounds is more distinct. The upper part of the left side scarcely moves on inspiration, but inferiorly the movements are more free. The left side of the chest measures, at the lower border of the axilla, one inch more than the right side, and below the mamma one inch and a half. Cardiac sounds normal, but sharp and short, as already said; heard more distinctly to the left of the sternum than before, although the heart is still felt to beat to the right of the mesial line. Pulse 144. Respiration hurriedly performed, thirty-two per minute. Sputum clear and frothy; has never contained any blood. Face flushed. As the attacks of dyspnoea were spasmodic in character, she was ordered chloroform and sulphuric ether, but neither was tolerated.

9th.—Slight bulging is now apparent in left supra-scapular space, which measures, from the spinous process of the seventh cervical vertebra to the acromion, half an inch more than on the right side. Dr. Gairdner, who saw her to-day, confirmed the report on the physical signs, but recommended paracentesis thoracis to be performed as an exploratory measure.

12th.—Paracentesis performed to-day, below sixth rib, when only about fifteen ounces of glairy sanguineous fluid escaped, specific gravity 1022, containing merely blood discs when viewed under the microscope. The fluid flowed from the canula only during expiration.

13th.—Not relieved by the operation.

19th.—Dyspnoea very urgent.

21st.—Died this morning.

Section cadaveris, thirty-two hours after death.

—Body emaciated; the left side of the chest visibly larger than the right. On opening the thorax, the heart and pericardium were found lying completely to the right side of the sternum; heart small, but quite healthy; aorta also perfectly normal. Right lung emphysematous anteriorly, collapsed, and partially condensed behind and below. The left side of the thorax was filled by a large tumour, which extended across the anterior mediastinum into the right side. At the lower part of the left side were about twelve ounces of fluid exactly similar to that drawn off by the trocar. The tumour, which weighed nearly thirteen pounds, was of a distinctly cephaloid character, containing numerous small cysts, filled with a glairy, dark-coloured fluid. The tumour was connected merely with the pulmonic pleura of the left lung, not being attached in any way to the ribs or parietal pleura, nor incorporated with the tissue of the lung itself. The lung having been compressed against the spine by the tumour, was greatly condensed, but still partially resonant, and capable of admitting a little air. No enlargement of the cervical or bronchial glands. Liver normal in size and appearance. All the other organs of the body healthy.

Remarks.—The above case may be considered one of some importance, illustrating as it does the tendency to return observed in almost all cases of malignant growths, and the necessity of giving a very guarded prognosis after the removal of such tumours by operative measures. Although the tumour in the first instance derived its origin from bony tissue, there does not appear to have been any tendency to reproduction in the osseous system, the portion of the left femur having been found, on examination after death, perfectly free from disease. The pain referred to the forearms and right shin is, indeed, somewhat suspicious; and it is to be regretted that these parts could not have been included in the post-mortem examination, which was only permitted on condition that the internal cavities of the body alone should be examined. The pain and œdema, however, may, I think, be satisfactorily accounted for, by supposing an obstruction to the return of blood from the extremities, arising from pressure on the *venæ cavae* by the mass of disease.

Interesting, however, as this case is in a surgical point of view, it is infinitely more so as regards the latter part of it, at least when considered in relation to medicine, as demonstrating how thoroughly the physical signs, independently of general symptoms or previous history, sufficed to guide us to a correct and accurate diagnosis. Indeed, so full of interest does it become when looked upon in this light, that I trust I may be excused if I enter rather fully into details, which may be deemed superfluous in a report of surgical cases. Let us see, then, how far physical signs alone enabled us, reasoning by exclusion, to arrive at a correct apprehension of the nature of the affection. The results of physical examination of the

chest during life could be attributed to, or could have arisen from, one or other only of the five following conditions: viz.: interthoracic aneurism; hydrothorax, with or without pneumothorax; carcinoma of the lung; cirrhosis of the lung; or, what it eventually proved to be, a tumour of a malignant nature in the cavity of the chest, closely attached to the lung, but not arising from, nor incorporated with, the lung tissue.

First, then, had this been a case of thoracic aneurism, we should, or at least ought to, have found pulsation and some species of murmur in the chest. No doubt large aneurisms in this situation may and do become so entirely solidified as to afford neither of these signs, to any marked extent at least; but had this been the state of things in the present instance, the left lung, instead of being compressed against the spine, would have been pushed forward, masking the dulness of the aneurismal tumour, and we should not have found the perfect equality of the pulse at both wrists, nor its exact synchronism with the systole of the heart, which, again, would, in all probability, have been hypertrophied in some degree, and presented something abnormal in the character of its sounds.

Secondly. Hydrothorax from pleuritic effusion would give rise to many of the signs observed—the extensive dulness on percussion, the absence of vocal resonance and fremitus, and the displacement of the heart, with compression backwards of the left lung; but, on the other hand, the communication of the heart's sounds and impulse over the dull surface, and the extension of the dulness over such a markedly limited portion of the right side, are inconsistent with the idea of pleurisy. Moreover, the absence of bulging of the intercostal spaces to an amount at least proportional to the degree of displacement of the heart, the local bulging occurring especially in the supra-scapular region, and not towards the lower part of the chest, and the limitation of the dulness inferiorly in the first examination, argue strongly against the supposition of hydrothorax. In cases of the latter affection also, we should have found that the dulness would have extended beyond the ordinary boundaries of the thoracic cavity inferiorly, from the diaphragm being pushed down by the fluid above.

Thirdly. In carcinoma of the lung, vocal fremitus and resonance would at least have existed to some extent, if they were not markedly increased, and vesicular respiration, instead of being confined to the root of the lung, would have been tolerably general. Carcinoma of the lung would not have pushed across the mediastinum, so as to give the dulness along the right clavicle, nor would it have caused the limited bulging on the level of the second rib, unless indeed the whole lung had been converted into an irregular solid mass of cancer, in which case no trace of respiratory murmur would have been discoverable in any part of the lung. The absence of hæmoptysis as a general symptom might have assisted us slightly here, although it is by no means a universal accompani-

ment of this affection of the lung, as has been shown in a case recorded by Dr. Laycock.

Fourthly. All the arguments against its being a case of carcinoma of the lung apply still more strongly to the supposition of its being a case of cirrhosis of the lung; we are therefore brought to the

Fifth supposition—viz., cancerous tumour not connected with the lung tissue, being the only affection capable of accounting for all the signs observed, and which, as we have seen, was found to be the result of the post-mortem examination.

One point, however, observed in this case during the first examination remains unaccounted for, and I cannot devise or suggest any solution of the difficulty—viz. the occurrence of a clear tympanitic note on percussion over a large tract of the front of the chest, with exactly-defined margins, and extending, in a peculiarly limited manner, across the mesial line to the right side of the chest, while over its whole surface respiratory murmur was absolutely deficient. This, of course, precluded the idea of its having been due to emphysematous or even healthy lung tissue compressed forwards. Had it been pneumothorax, there ought to have been some sound on Hippocratic succussion, and it could not have disappeared so rapidly unless its place had been occupied by effusion, while, on tapping the chest only fifteen ounces of fluid could be obtained. It was thought at one time that it might arise from distension of the stomach and œsophagus by air, but this would have caused uneasy feelings, of which the patient did not complain, and it would not account for the tympanitic portion extending into the right side. It is curious that the patient should have experienced no symptoms of dysphagia, when we consider that this immense mass extended over the œsophagus, pushing into the right side, and carrying all the mediastinal structures before it. And it is also unusual to find so much displacement of the heart with so little discomfort or difficulty of breathing in all positions, as was manifested by the patient until within a few days of her death.

CASE 6.—*Case of Poisoning by Chloroform taken internally.*—On the 19th of May last, at a quarter past 10 P.M., I was called to see A. B.—, aged twenty-one, one of the female servants of this hospital, who, I was informed, had twenty minutes previously swallowed two ounces of pure chloroform. I found her lying in bed, half dressed, in a state of perfect unconsciousness, (apparently in a profound sleep,) from which she could not be roused; her breath did not smell of chloroform. Pupils very much contracted; conjunctiva quite insensible; body of normal temperature; respiration tranquil and regular; pulse 78, soft and tolerably full; no congestion of face. I immediately ordered sinapisms to be applied to the extremities and over the epigastrium, and having secured the able assistance of my colleague, Dr. Thorburn, proceeded to evacuate the stomach by the stomach-pump, it being impossible to make her swallow an emetic. A delay of nearly ten minutes occurred before the stomach-pump was procured; when it was applied,

the matters evacuated had not the slightest odour of chloroform, nor of opium, which was suspected from the excessively contracted state of the pupils. About half an ounce of mustard was introduced into the stomach, which was again emptied, and then a drachm of aromatic spirit of ammonia, with one ounce of brandy, administered by means of the stomach-pump. Some feeble attempts at vomiting ensued, and the pupils became fully dilated, and continued so for some minutes, but still continued quite immovable when exposed to a strong light. At the same time the beats of the pulse and number of respirations slightly increased in frequency, but shortly after fell below their previous standard. A powerfully stimulating enema was now administered, and, after a lapse of ten minutes respiration becoming slow and stertorous, the pulse at the same time sensibly flagging, and the face becoming livid and congested, galvanism was resorted to, a free circulation of air being kept up around the patient, and her tongue held forward by a pair of catch forceps to prevent closure of the glottis. The number of respirations, however, continued to decrease, falling so low as seven in the minute, and accordingly an additional pair of plates were added to the galvanic battery, greatly increasing its strength and efficiency, while enemata of beef-tea and brandy were administered frequently. Dr. William Gairdner, one of the visiting physicians to the hospital had been sent for, and arrived about twenty minutes past eleven p.m. He recommended the administration of a large black draught, which was done by means of the stomach-pump; this produced severe retching and attempts to vomit, during which the patient was repeatedly almost asphyxiated. Keeping up artificial respiration with the aid of galvanism was now evidently our only resource, and this was continued, with occasional short intermissions, for nearly two hours. Stimulating enemata were given every half hour, and warmth applied to the extremities, which became excessively cold. Everything, however, appeared of no avail, and respiration fell to two per minute; the pulse at the wrist became imperceptible, while the face and neck were perfectly livid. At one time, indeed, breathing ceased altogether for nearly two minutes, and the jaw fell. The remedial measures were, however, persevered in, and in about half an hour we had the gratification of perceiving some signs of amendment. Her pulse gradually gained in strength, while her breathing, became less embarrassed, *her breath now smelling strongly of chloroform*.—Half-past two p.m.: Pupils became widely dilated, the sensibility of the conjunctiva returning, and the lividity of the face disappeared. Galvanism was now desisted from, although the patient still remained unconscious, all attempts to rouse her being unavailing.—Three a.m.: Bowels very freely purged; pulse 94, gaining strength; respiration 28 per minute; the extremities have recovered their natural temperature.—Half-past three a.m.: Consciousness slowly returning.—Four a.m.: For the first time the patient answered when addressed, and of her own accord opened her eyes. The white of egg beat up with

mucilage and warm milk was now cautiously administered, and attendants were directed to watch her carefully.

May 20th.—Ten a.m.: Perfectly sensible; pulse 100, soft; respiration unembarrassed, and not hurried in any marked degree; complains of general pain in abdomen, of thirst, and great nausea; tongue moist, but is considerably swollen, and very painful. Hot fomentations applied over abdomen, and she was ordered to have five minims of tincture of opium, every three hours, in half an ounce of mucilage. Has not passed any urine since last night; bladder empty.—Evening: Tongue moist, and still extremely painful; pulse 120, soft and regular; general pain over abdomen; has been severely purged, and a considerable quantity of blood passed by stool; urine passed freely; complains of a dull, aching pain across the loins. To continue the fomentations, have a starch enema containing half a drachm of tincture of opium, and to swallow pieces of ice occasionally.

21st.—No return of the diarrhoea; slept a little during the night; pulse 132, soft; tongue furred; thirst excessive; pain is now entirely referred to the epigastrium, and is increased by pressure, which also induced a tendency to vomit; feels drowsy, and pupils are slightly contracted; urine passed abundantly. To apply twelve leeches to the epigastrium, and a sinapism along the spine.—Evening: Much relieved; pulse 130; tongue moist; less drowsy, and free from nausea; diarrhoea has recurred, but not severely. To repeat the starch-and-opium enema.

22nd.—Greatly better; pulse 100; complains merely of a general feeling of soreness; has taken a little beef-tea, which was retained in the stomach.

23rd.—Doing well; pulse 90, soft.

25th.—Is able to sit up, and the following day returned to her work.

I have communicated the particulars of this case from its great interest, being, as far as I am aware, the only one on record of poisoning by chloroform administered internally. The only other case I know of its occurrence happened also in this hospital, some years ago, when a patient having surreptitiously got possession of a bottle of chloroform, swallowed (if I remember rightly) the enormous quantity of six ounces. The man recovered from the immediate effects of the poison under the use of stimuli and galvanism, but died in great agony, within forty-eight hours, with symptoms of acute gastritis. When first called to the present case, I should certainly have thought it a case of poisoning from opium, had I not been shown the bottle which had contained the chloroform, the contracted state of the pupils, coupled with the patient's complete insensibility, strongly resembling the effects produced by the former drug. The diminution of the frequency of respiration, however, was not proportionate to the amount of stupor. The indications for treatment were evidently to sustain the flagging vital power by stimulants and galvanism, but I am doubtful of the propriety, in such cases, of administering alcoholic stimuli, which

might tend to aggravate the symptoms; and, should I ever meet with a similar case, I should trust more to the preparations of ammonia, as we are, I think, justified in supposing that chloroform, to a certain extent at least, acts by causing an excess of carbon in the blood, which would be still further increased by the administration of any form of alcohol. In fact, the patient's condition was precisely that of extreme drunkenness. It is worthy of notice, that although certainly not more than forty minutes elapsed from the time the chloroform was swallowed till the stomach was evacuated by the stomach-pump, no smell of chloroform was appreciable in the contents of the stomach. This could have arisen only from extremely rapid absorption of poison, or from its quickly having passed into the small intestines, and been thence absorbed more gradually. The latter supposition is favoured by the fact that a strong odour of chloroform was perceived in the patient's breath when she began to rally from its effects, nearly four hours subsequently to its administration, although it could not be detected before. It was from a consideration of this kind that Dr. Gairdner prescribed an active cathartic, in hopes of emptying the intestines of their noxious contents. It is still a disputed point, whether the action of chloroform on the nervous centres affects primarily the respiratory or circulatory systems. The former is maintained by Mr. Bickersteth, of Liverpool, who has supported his arguments by several interesting and carefully-conducted experiments; while in the case of death from inhalation of chloroform recorded by Dr. Dunsmure, the heart appeared to cease to beat before the respiratory movements were suspended; and a similar observation was made in the case lately published by Dr. Mackenzie, of Kelso. In the case before us, the heart and lungs seemed to flag *pari passu*—certainly the radial pulse disappeared before respiration was entirely arrested, but unfortunately at the moment it was not observed if the heart had likewise stopped.

The successful result of this case may serve to encourage medical men to persevere, even against hope, under similar circumstances, in continuing their exertions. Mr. Lowe, two or three years ago, published a case of inhalation, in which respiration and the heart's action were arrested for fully four minutes when under continued artificial respiration; the pulse first slowly reappeared, followed by a return of the natural respiratory movements.

In cases, however, where chloroform has been swallowed, it is not only the immediate effects of the drug that we have to fear, and this is well exemplified in the instance of the patient already quoted, who died from the subsequent inflammation set up. Fortunately, in the present case, the symptoms of the secondary danger were never very severe, and were easily controlled by mild remedies.

Royal Infirmary, Edinburgh, 1854.

SUCCESSFUL CASE OF LIGATURE OF THE EXTERNAL ILIAC ARTERY, CLOSE TO ITS ORIGIN FROM THE COMMON ILIAC, FOR INGUINAL ANEURISM.

SEPARATION OF THE LIGATURE ON THE FORTY-SIXTH DAY.

By WM. PHILPOT BROOKES M.D., F.R.C.S.,

SURGEON TO THE GENERAL HOSPITAL AND DISPENSARY, CHELTENHAM.

JOSEPH S—, aged fifty-seven, cabinet-maker residing at Cheltenham, of a spare cachectic-habit looking some years older than he is; of a gouty tendency; arcus senilis very distinctly marked; the heart and other visceral organs quite healthy, stated that two years since, while using his brace to drill a bedstead, the head of which pressed upon the right groin in working it, on a sudden he felt great pain in the groin, and for a month afterwards he could seldom walk. A swelling appeared in the part; this for a time seemed improving, and caused him so little pain, that he consulted no surgeon till some six months after the accident. He again found much pain, and, upon closely examining the groin, discovered a small swelling, which he could hardly touch from the acuteness of the sensation. It now pulsed strongly; this gradually increasing in size, he became alarmed, and consulted Mr. Charles Gregory, surgeon, who at once discovered the character of the tumour, and desired me to see him.

Feb. 6th, 1856.—Upon examination of the patient, I found an aneurism in the right inguinal region, the size of a turkey's egg, pulsating very forcibly; its coverings were tense, but sound; not discoloured. It had considerably forced Poupart's ligament upward out of its natural position. Pressure on the external iliac artery gave so much acute pain, that he could not allow it, the pressure but slightly restraining the pulsation in the aneurism. There was no aneurismal indication in any other part of the body, the general health being good, although he looked some years older than he was. On a careful consideration of all the points of the case, I felt satisfied that treatment by pressure could not be carried out. I determined to tie the external iliac artery as near its origin to the common iliac as could with safety be accomplished to ensure a sufficient clot.

The patient readily gave his consent, and on the 13th of February, 1856, in the presence of numerous professional friends, I performed the operation at his residence. Making a semilunar incision, of five inches in length, commencing somewhat above the anterior-superior spinous process of the ilium, and extending to within an inch of the pubis, its convexity looking downwards, I dissected this flap; then dividing the aponeurosis of the external oblique muscle, reflecting it upwards, and passing my finger through the fasciæ transversalis, coming upon the sac of the peritoneum, I carefully pushed it upwards and inwards as far as possible, and reached the artery. I was now compelled to use the retractors, to keep the parts clear. The division of a small arterial branch, which bled most

profusely, gave some trouble; one end being ligatured, and still continuing to bleed from the other, an assistant kept pressure upon it. I secured the external iliac, after carefully separating it from its accompanying vein with my finger-nail. Tied the vessel as high up, and as far from the diseased portion of the artery, as I possibly could. My ligature was waxed, thick silk. Tying the artery with a double knot, all pulsation in the tumour immediately ceased. Both ends of the silk were brought out, and the wound united with sutures. During the administration of chloroform, which was kindly given by Mr. Hartley, the resident surgeon of our hospital, he became much excited; had, however, no knowledge of the operation until placed in bed, and some minutes had elapsed after its completion; his delight was not small when told all was over. The limb was enveloped in flannel, a warm brick kept to his foot, bags filled with baked bran were placed down each side of the thigh and leg, and the extremity was kept bent upon the pelvis.—Nine P.M.: Pulse 92, and quiet; tongue moist; foot and leg warm; feeling in it as acute as ever; complains of slight flatulence; no abdominal tenderness. He begged to be allowed a pipe, having for years been accustomed to smoke several during the day, and saying, "I shall not sleep unless I have one." I consented, and he worked away at it most heartily. He also took a cup of gruel. The aneurismal tumour in the groin is not perceptible; no kind of pulsation can be felt by most careful examination.

14th.—Pulse 72, and good; tongue moist; slept but little; no abdominal pain. The foot and leg being warmer than the other, I merely kept the warm brick to the foot, and left off the flannel and bran bags. A slight pulsation has returned in the groin.

15th.—Slept well all night; pulse 82, soft; tongue clean; the bowels not acted upon since the operation; the wound united by the first intention. All other symptoms favourable. The aneurismal tumour is somewhat returned, and pulsates slightly. No trace of pulsation in the femoral or popliteal could be discovered.

17th.—The patient is progressing favourably; foot and leg keep warm; the sutures taken out of the wound, which is perfectly united; the tumour larger, pulsating more; pressure over the situation of the femoral, below the tumour, entirely controls the pulsation in the aneurism. There was some discoloration and cedema over the posterior and upper part of the ilium to-day; warm fomentations readily dispelled it. The bowels freely opened. Has been kept on low diet until this day, when some meat was allowed him.

19th.—He continues to go on well. The tumour still pulsates, and appears to receive its supply of blood by a retrograde circulation, as pressure on the femoral (which can now be discovered pulsating feebly just below the aneurism, but in no other portion of its course) entirely controls the pulsation through the tumour. No throb can be felt in the artery above the aneurism, or in the popliteal space. He complains to-day of some

pain in the leg and knee; this he attributes to the severe frosty weather, which set in last night. He states that the cold tries him much; and we cannot keep the temperature of his room high enough for him. To take twenty drops of tincture of opium. This procured him a good night's rest, and all pain in the left knee disappeared.

23rd.—Going on well. It was found necessary to reduce his diet, as the meat disagreed, and he now takes it every other day. The aneurism still pulsates, but is getting smaller. Upon coughing, states that he felt a darting shooting pain in the situation of the ligature.

29th.—Going on very well. Aneurismal tumour pulsates; it is becoming much harder and smaller. He can now, for the first time for some months, lie over upon his left side without pain; this he could not attempt prior to the artery being ligatured, and the slightest pressure on the aneurism gave him intense agony; but since the operation that has entirely ceased. To have the whole of the leg and thigh bandaged, using slight pressure over the groin.

March 5th.—Gently tried the ligature without any result. The aneurism is harder, much diminished in size, and pulsates less. The bandaging to be kept up.

9th.—The pulsation in the aneurism has been gradually getting weaker; the sac more consolidated, and yesterday, in a moment, at two o'clock, all pulsation suddenly ceased. The man says it was so sudden that it startled him, and he pulled his watch from under his pillow to observe the time. I fancy the ligature gave slightly to-day. He complains that during the night his foot felt numb. It was wrapped in flannel, and the warm brick applied to it; in fact, the brick has been rarely discontinued since the operation. I also had some baked bran applied to the leg. The bowels are constive, and require castor oil occasionally; the diet to be improved; to take meat twice a day.

12th.—No pulsation returned; the tumour gradually becoming absorbed; foot and leg quite comfortable; appetite good. Bandaging of the limb discontinued since the 9th.

15th.—Yesterday he found a pain in the knee, which he persists is rheumatism; there was also a slight reddish blush around the situation of the aneurism. To-day, upon my visit, I found erysipelas and cedema around the upper part of the thigh and groin, involving the aneurism, which is most painful upon the slightest touch. I requested him to carefully avoid handling the part, or permitting any of the medical gentlemen, who take an interest in the case, and visit him, to touch it. The tongue was clean and moist; pulse calm; bowels freely opened; little or no constitutional irritation. The thigh was dressed with lint dipped in a warm solution of poppyhead infusion, and the wet lint was covered with oil silk. For the first time since the operation, I allowed him some beer. The erysipelas did not extend around the ligature or cicatrix of the wound.

16th.—Countenance anxious; cedema and erysipelas much subsided; tongue clean; bowels

opened; pulse quicker than it was yesterday; slept but little. Did not take the beer. Continue the warm application, and take ten grains of Dover's powder at bed-time. The urine was much loaded with lithates.

17th.—Urine natural to-day; erysipelas has left the situation of the groin, and the aneurism now occupies the middle of the thigh. Applied caustic around and over it in several places, and kept on the warm dressing. Take beer.

18th.—Slept well. The erysipelas does not extend, the caustic appears to have restrained its course. He looks anxious; pulse quick; tongue moist; appetite bad; took to-day and yesterday half a pint of beer. To have cod-liver oil and quinine, one tablespoonful three times a day.

19th.—Slept well. Erysipelas is better; appetite improved; pulse 100. Apply lint dipped in warm water, covered with oil-silk.

20th.—Improving. Takes nearly a quart of beer daily. Still much oedema of the upper part of the thigh, but the erysipelas is nearly subeided.

21st.—Going on satisfactorily. Takes his food and beer well. Slight fluctuation on the inside of the thigh discovered to-day; but on passing a grooved needle no pus escaped.

27th.—A distinct point had formed, which fluctuated freely. He states that, for the last two days, he has suffered great pain, but did not call to his assistance any one during my absence from Cheltenham (which had been for three days), although I had ordered him to do so; he continued waiting for my return. The fluctuation was chiefly in the middle and inner part of the thigh. There was also a soft point in the situation of the sac: the pus was confined under the fascia. On making a deep incision at the depending point, a large quantity of pus, mixed with dark, grumous, coagulated portions of blood of a most offensive character, escaped; that portion situated in the sac of the aneurism communicated with, and was emptied by, the lower outlet. It was evident the sac had suppurated, and this was the original seat of the erysipelatous inflammation. I bandaged the upper portion of the thigh, using gentle pressure; and wet lint was kept on the depending point for the escape of the matter. His tongue was clean, and he had but little constitutional irritation. To take two grains of quinine three times a day, and as much Guinness's stout as he could comfortably drink, with generous diet.

28th.—Pulse quiet, but feeble. Scarcely any constitutional symptoms. About four ounces of pus discharged of a more healthy character. I placed an india-rubber band between the two ends of the ligature, and strapped it up to the abdomen, my object being to keep steady and gentle extension on the ligature.

30th.—The discharge from the thigh is much diminished. Continues his porter and quinine, and is gradually gaining strength. He states that the ligature was pulled much by the band, and caused some pain during the night. On touching it I found it yield, and on replacing the band the ligature came away, this being the forty-sixth day

from the operation, not including the day of its performance. That portion of the ligature which surrounded the artery readily allowed the passage of a good-sized goose-quill through it.

31st.—The discharge from the thigh is very trifling. Upon pressure around the spot from which the ligature escaped, a discharge of pus took place; pressure up the thigh also caused the same discharge from this point. He had no abdominal tenderness; bears pressure over the abdomen with ease.

April 12th.—Has gained strength; walks about; all discharge ceased both from the thigh and abdomen.

24th.—Quite well; the sac of the aneurism can barely be discovered. Upon very accurate examination, a small hardened spot is felt in its situation. The patient now walks some distance daily, and says he feels strong; has gained much flesh; the foot and leg of their natural warmth; walks with the limb as strongly as ever; the circulation in it powerful and perfectly re-established.

Cheltenham, 1854.

DESCRIPTION OF A SIMPLE INSTRUMENT FOR INFLATING THE LUNGS OF INFANTS IN AN ASPHYXIATED STATE.

By JAMES G. WILSON, M.D.,

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THE majority of obstetric writers seem to consider inflation of the lungs the most successful and efficacious plan of treatment in the more severe and desperate cases of asphyxia neonatorum. Instances of suspended animation in the new-born child are met with of various shades and degrees of intensity; but it is principally to the well-marked and decided cases, and to inflation of the lungs, that the following remarks are intended to refer:—

The usual methods by which artificial respiration is affected, consists in either applying the mouth directly to the child's mouth, or by means of an intervening flexible or metallic laryngeal tube; or lastly, the application of a pair of small bellows contrived and constructed for the purpose. The former of these resuscitative methods, or inflation by mouth applied to mouth, although perhaps the readiest, becomes very fatiguing and exhausting when long continued—the more so from the constrained and irksome position the operator has frequently to assume and retain; and, besides, it is not always very pleasant or agreeable to apply one's mouth directly to that of a child born of a filthy or diseased mother. Another objection to this plan is, that the air forced into the child's lungs is very apt to be more or less impure, warm, and moist. Most of these objections apply to the laryngeal tube. The bellows is a clumsy, cumbersome, and unportable apparatus, and not likely to be at hand when required. Finding, therefore, that each and all of these restorative methods are more or less objectionable and unsatisfactory, I have been induced to construct the little instru-

ment about to be described, which I have found serviceable on several occasions.

The instrument essentially consists of a vulcanized india-rubber ball about the size of an orange, to which is attached a German-silver tube, about five inches long, and gently curved towards its free extremity. The tube is closed at the extreme end, but has two openings or eyes, like a female catheter, a short distance from the point. On compressing the ball, the contained air rushes along the tube and through the openings above-mentioned, and on removing the pressure the ball rapidly expands, and becomes instantly re-filled with air, which may again be evacuated as before. On introducing the tube into the larynx, and acting in this manner, it is obvious that for the most part the same air would be used over and over again, which would be a manifest disadvantage and a decided objection. This, however, may be easily remedied by making another opening in the tube, about an inch from its attachment to the ball, for the free ingress of fresh, cool, dry air. During the compression of the ball, the left thumb will easily cover the opening, which must, however, be removed to admit the entrance of pure air during the subsequent expansion of the ball. This opening being somewhat larger than the other two, and being much nearer the ball, readily permits the introduction of fresh air. The left index finger passed into the posterior part of the mouth, with the child's head a little thrown back, will tend to facilitate the proper insertion of the tube into the larynx. It is not necessary, as when other methods of inflation are used, too push back or depress the larynx, in order to prevent the transmission of the air through the œsophagus. The insufflation of the lungs must be gently and slowly performed, so as to imitate the normal respiratory process. After each inflation, the chest must be slightly compressed, with a view to expel the remaining air in the lungs.

The advantages of this instrument appear to me to be as follows:—It is abundantly simple, both as regards principle and construction. It can be easily introduced, and worked for any period with little exertion; and from its small size, is very portable. The air blown into the lungs is at once pure, cool, and dry, and the force with which it may be propelled can be easily regulated. It is not so liable to rupture or injure the air cells, which I have reason to fear is sometimes done in consequence of too violent restorative attempts at insufflation with the mouth or with the bellows. The irritation which the presence of the tube may occasion in the fauces and larynx, instead of being detrimental to the child, as I have heard remarked, ought of itself in many cases to have a salutary and beneficial effect, as tending to excite a gasping inspiration or a convulsive sob. If the instrument is properly applied, the air is more certain to enter the lungs, and less likely to pass into the stomach and distend the intestines, as is too often the case when the mouth alone is used, even although the larynx be pressed back. Many infants, I am convinced, are lost from the process of

respiration being impeded by the presence of fluid or mucous in the air-passages, and which, from inherent weakness and debility, they are unable to expel. This is indicated by a peculiar gurgling sound when the child attempts to breathe. This collection of mucus or fluid in the respiratory passages is, I conceive most likely to occur when the child's head is the last part to be born, and particularly when retained in the vagina for some time. This may arise from two causes. The impression made on the cutaneous nerves of the chest by contact with the atmospheric air induces the child to inspire, and thus to draw in mucus or other fluid lying in the vagina in contact with the mouth. The entrance of any fluid into the larynx or trachea in such cases may be also occasioned by gravitation. Of course the fluid may enter the œsophagus, but this is of minor consequence. This cause of suspended or interrupted animation in the infant has been too much overlooked and neglected. With the instrument above described I have on several occasions succeeded in withdrawing large quantities of fluid from the air-passages, with the effect of materially relieving the breathing. When the fluid is in large quantity, the tube may become clogged up, and the ball partly filled, when it becomes necessary to withdraw the instrument, and clear it of all the fluid, otherwise it will be again injected into the air-passages. Great care must be taken not to introduce the tube into the œsophagus instead of into the larynx. In the slighter forms of asphyxia the use of the instrument is quite unnecessary, and, when employed in urgent cases, it does not preclude or interfere with the use of other means, such as the alternate immersion in the hot and cold bath, stimulants applied to the surface, or introduced per rectum, &c. It is now about three years since I first constructed this little instrument, and it is so very simple that any person can easily make one in a few minutes.

August, 1856.

ON A CASE OF STRANGULATED SCROTAL HERNIA.

By THOMAS A. FURNESS, Esq., F.R.C.S.

LECTURER ON ANATOMY AND PHYSIOLOGY IN THE COLLEGE OF PRACTICAL SCIENCE, NEWCASTLE-ON-TYNE.

Mr. H—, aged fifty-six, a short, stout man, with a very protuberant belly; has been a free spirit drinker for a great part of his life. Thirty-six years since he became affected with a hernia in the left side, for which he has worn a truss, but not with that carefulness which he ought to have observed. According to his own statement, he has always been able easily and perfectly to reduce the rupture whenever it took place, until the 17th of January in the present year, when, upon trying to return the parts which had descended, he found he was not able to succeed. The bowels not acting, the protrusion continuing, and some little uneasiness being felt, my friend, Mr. Stainthorpe was called to visit this person, and found upon exami-

nation a very large scrotal hernia, which he applied himself to reduce by the means generally adopted in such cases, but found himself unsuccessful. As at this time there were no urgent symptoms, Mr. Stainthorpe ordered such means to be adopted as have been found to cause, or assist in causing hernia to return. No benefit, however, accrued to the patient, and the usual remedies and appliances having been exhausted, and matters, of course, becoming more and more serious as time wore on, I was requested on January the 20th, three days after the incarceration of the gut took place, to perform the operation for strangulated hernia. The patient had chloroform administered to him, of which he inhaled a considerable quantity; the effect, however, of it was only to put him into a state resembling very unruly drunkenness, when he protested, argued, kicked, and struggled rather unpleasantly. I may here mention that I have again and again seen chloroform, when administered to old spirit drinkers, produce this same unruly effect, and only this, even when inhaled in quantities far beyond what generally produces anaesthesia.

On this drunken effect of the chloroform disappearing, and the patient becoming rational, he said he would prefer the operation to be done without it, as the inhalation hurt him, and brought on a cough. He was an old sufferer from chronic bronchitis.

The operation was accordingly proceeded with. The sac was reached with a few strokes of the scalpel, the different layers of fasciae not being at all thickened, although the hernia was a very large one, and of so long standing. Upon laying open the sac, which also was not thickened, a large quantity of omentum presented itself, and beneath this, intestine both large and small. The veins distributed through the omentum were considerably dilated; the omentum itself was slightly pinkish in appearance, and somewhat indurated. Part of the intestine was of a light claret colour; the rest was scarcely altered from its natural hue. The stricture, which was in the neck of the sac, at the external abdominal ring, I divided rather freely. A portion of the small gut was found, upon examination, to be closely attached to the sac by old and firm adhesions; other parts of the intestines were floating free, but these could not, by the most careful manipulation, be returned into the abdomen. The bulkiness of the viscera protruded being too much for the sac properly to contain them (indeed, it was not found practicable to replace the whole of the omentum in the sac, together with the intestines, which had to be left there), a ligature was tied round the omentum, and a quantity of it, about three-quarters of a pound, cut away. Having ascertained that the stricture was quite relieved, the wound was brought together by three or four interrupted sutures, and a pledget of wet lint applied.

The patient passed a quiet night. The bowels acted naturally a few hours after the operation. On the third day from this time the bronchitis with which Mr. H—— was troubled became much worse. His chest began to fill with fluid; he

was very weak, and appeared rapidly sinking. Stimulants were then administered very freely; under their use the patient kept up, and gradually began to improve. For some time he took as much as a bottle of rum per day and at length became convalescent.

The wound made for the operation healed as satisfactorily as could have been expected. An abscess formed in its vicinity, just where the ligature was left tied round the omentum; this was opened, and the ligature came out with the matter. One or two more abscesses formed in the neighbourhood, but these soon healed.

Subsequently to this, as I am informed by Mr. Stainthorpe, a number of abscesses appeared over the chest, and with their formation this man's general health seemed much benefited. He went into the country for change of air, Newcastle not being celebrated for the salubrity of its atmosphere, and by the last account I heard of him, two or three weeks ago, he was about to return to his usual avocations.

Newcastle-on-Tyne, April, 1866.

ON THE TREATMENT OF CHRONIC DYSENTERY.

By R. W. ELLIS, Esq., M.R.C.S.E., Bristol.

In consequence of the prevalence of dysentery amongst our brave troops during the late war, and the generally intractable and often fatal character of the complaint, any new suggestion with reference to the treatment, however insignificant in itself, assumes a degree of interest and importance which otherwise could not be claimed for it. It is under these circumstances that I wish to call attention to a remedy in the chronic form of dysentery which has proved very useful in my hands, but which requires more extended observation to establish its utility than I can expect to have the opportunity of giving to it.

In dysentery, the large intestines are very often the principal parts affected, and in all cases they are very much involved in the disease. The discharge in the early stage consists often of a slimy mucus and of a more serous portion mixed or streaked with blood; subsequently pus is discharged, still streaked with florid blood, epithelial debris, &c.; and now and then small portions of imperfectly-formed faeces will be observed with the stool. The calls to stool are frequent and distressing, on account of the tenesmus that accompanies the least evacuation; there is also uneasiness or tenderness in one or both flanks.

Now, when the functions of the colon are performed in a healthy manner, the faeces are figured, of a firm consistence, and of the well-known colour. In dysentery, or, as it is sometimes called, colitis, this function is completely in abeyance; but whether this is produced by the relaxed state of, and consequent want of tone in, the muscular coat, or from the extreme irritability of the mucous membrane of the intestines, or of the character of its contents, or all combined, I cannot determine.

The compound tincture of benzoin I have found, when administered in this disease, particularly useful in restoring, and that in a very short time, this function of the colon. Whether it also acts beneficially by protecting and sheathing the ulcerated portions of the gut, or by its stimulating qualities induces, just as it does in chronic ulcers of the surface, the reparative processes to go on more rapidly, I am unable to determine. The tincture of benzoin, I need scarcely say, consists of benzoin, styrax, tolu, a small quantity of aloes, and spirit. The dose generally given is from fifteen to twenty minims. The following cases I have extracted from my notebook, as being the most striking instances that I have met with of its beneficial effects:—

CASE 1.—C. S—, aged fifty, female, married, the mother of several children, has suffered for years from diarrhoea, with tenesmus and discharge of blood per anum; no piles. Has been in the habit of taking drops of the tincture of sesquichloride of iron, as prescribed for her by a physician, and with benefit. Has suffered from her complaint in an aggravated form since last Christmas, and has lately taken a great deal of medicine for it without relief. At present (May 29th, 1855) she passes a great deal of blood by stool; pain great; bowels loose; blood mixed with the stool; breath short; lips very pale; countenance exsanguine. Ordered, twenty drops of compound tincture of benzoin, to be taken on sugar three times a day.

June 1st.—Has not passed any blood since the third dose; feels better; is stronger, and has more appetite; lips rosy; more colour in cheeks, and expresses herself as “wonderfully better.”

3rd.—Ordered twenty drops of the tincture of sesquichloride of iron, one ounce of the infusion of columba, to be taken twice a day; one grain of compound calomel pill, every night.

July 24th.—Still continues much better; the pills act gently on the bowels.

CASE 2.—M. E—, aged thirty, female; ill ever since March 8th, with looseness of the bowels, pain in the left flank, and a discharge of purulent, foetid matter, streaked with blood, per anum; emaciated, and has a hectic blush on cheek; skin muddy, and of a dirty-yellow tinge; cries, and feels thoroughly miserable with her condition, and disgusts others by the smell which the discharge, which passes involuntarily, gives her; has piles; has taken nearly all the medicines enumerated by Dr. Copland as useful in such cases, with but little benefit.

May 14th.—Ordered, compound tincture of benzoin, twenty minims, three times a day.

June 8th.—Nearly well; motions natural. To take, tincture of sesquichloride of iron, ten minims; infusion of columba, one ounce, three times a day.

CASE 3.—S. M—, age not ascertained; aborted four weeks previously; after which she suffered very much from hæmorrhage. Having attended her for this, and finding her again weak, faintish, complaining of pain and loss of blood, she was treated at first for loss of blood per vaginam, and took some pills of acetate of lead and opium. Two days after, finding her no better, I made a

more minute inquiry into her case, and found that the loss took place by the rectum. She was now ordered the tincture of benzoin, and, three days after, I found that the discharge had ceased, and the motion had become quite natural.

CASE 4.—July 28th, 1854.—John W—, aged two years; bowels loose; discharge of blood and matter; pain. Ordered, a mustard poultice. Mercury-with-chalk, two grains; compound ipecacuanha powder, one grain, every four hours.

July 30th.—State of bowels not relieved; drowsy; pain severe. Ordered, a warm bath. Mercury-with-chalk, two grains; ipecacuanha powder, half a grain, every three hours.

August 1st.—Much better; no blood by stool; no pain.

7th.—Relapse; considerable pain; powder as last prescribed again tried; also a chalk mixture, with ipecacuanha, &c., but without benefit. Ordered, compound tincture of benzoin, one drachm; tincture of opium, ten drops; peppermint water, three ounces; two small spoonfuls, three times a day.

10th.—Nearly well; felt relief shortly after taking the medicine.

15th.—Cured.

DISLOCATION OF THE RADIUS BACKWARDS.

By NICHOLAS OLIVER, Esq., L.R.C.S., &c., Durham.

DISLOCATION of the radius backwards at the elbow-joint is of such rare occurrence—Sir Astley Cooper never having met with this accident in the living subject—that I trust the following case will be considered worthy of insertion in THE LANCET:—

Five weeks ago, a boy, about ten years of age, was brought to me by his father, who stated that his son, whilst playing with his sister upon the bed, a few hours previous, had fallen off, and put his elbow-joint out. On examining the seat of injury, I found considerable tumefaction, and at the external condyle of the humerus and upper portion of the radius a slight prominence could be detected. The forearm was slightly bent, and almost fixed, any attempt at flexion or extension producing much pain; the hand was prone, and only to a very limited extent could it be brought to a state of supination. Tracing the radius from below upwards, the head of the radius was found, after some little difficulty, projecting backwards and a little outwards on the external condyle of the humerus. Placing the fingers at this point, and moving the forearm as far as it admitted, the motion was communicated to the finger. No displacement of the ulna had taken place. The nature of the injury was now sufficiently obvious; and by extending the radius, at the same time making counter-extension of the upper arm, and pressing inwards on the head of the radius, also simultaneously bending the elbow-joint, the reduction was easily effected. To prevent subsequent displacement, the arm was secured in the position by a splint and bandage, and at the present time

the boy has complete and perfect motion of the elbow-joint.

In such a rare dislocation it is a question of some interest to inquire into the force requisite to produce such an accident, and the resulting anatomical effects. Professor Langenbeck considers that the only situation where the application of force is likely to effect displacement of the head of the radius is in the palm of the hand, opposite to the muscles of the thumb, and that the orbicular as well as the capsular ligament will be ruptured, and probably some of the superior fibres of the inter-osseous ligament.

It is a matter of regret that in this case the boy could not tell upon what part of his arm he fell.

March 31st, 1864.

OBSERVATIONS ON THE INFLUENCE OF TUBERCLE UPON CERTAIN MUCOUS MEMBRANES.

By P. MARTIN DUNCAN, M.B., Lond.,

PHYSICIAN TO THE ESSEX AND COLCHESTER HOSPITAL.

If the kidneys, testicles, and even the absorbent glands, be examined carefully in subjects dying from general and aggravated tuberculosis, small tubercular deposits may be detected in contact with their tubular mucous membrane. The frequency of these deposits in the mammillary cones of the kidney is remarkable, and they may be recognised by the naked eye as opaque linear masses; the microscope proves, however, that the adventitious product is external to the parallel tubuli uriniferi.

Common strumous testicles present those appearances, in spots remote from the fungoid-looking mass which protrudes through the tunica, which may be, now and then, found in examinations after death from general tuberculosis. These isolated deposits may be recognised by their opacity and yellow tinge.

Almost every strumous absorbent gland affords a specimen of the influence of tubercle upon its ducts and tubules.

In examining the deposit in the kidney, I have found that a thin section at right angles to the tubuli, well washed, by being shaken in a phial half-filled with water, suffices to demonstrate that the fibrous matrix around the tubules is replaced by a lowly-organised deposit, which, where it is scanty, does not compress the tubules, but which, in its denser portions, reduces their calibre and frequently destroys their continuity. Sections parallel to the tubuli must be made with greater care, and the washing must be gentle; for the object is not to wash away the epithelium. In these sections, the tubules may be seen entering the deposit; and immediately they come in contact with it, their epithelium, hitherto healthy, becomes loaded with fat globules; the space between the tubules is occupied by a dense homogeneous and transparent mass which no amount of washing will remove, by granules, and many small irregular-shaped cells with dot-like nuclei.

As the density of these adventitious products increases—and it does so from the margin to the centre—the tubules are compressed; slightly at first, where, moreover, the epithelium is destroyed and the fat globules set free; and considerably eventually, when the deposit is hard and unyielding. At this point the tubules are narrowed, the fat globules appear to have coalesced to produce a highly refractile fluid within the constricted tubules, and finally the course of the parallel rows of tubuli uriniferi is only to be distinguished by the appearance of lines of lacunæ; these lacunæ being fragmentary tubuli.

In the testicle, tearing with needles suffices to show the influence of the deposit, in the lax vascular tissue around the seminiferous tubes, upon their calibre and contents. I have never been able to trace, as in the kidney, the deposit of fat in the epithelium; but the earliest effect of the contiguity of the deposit around the tube, as far as I have been able to observe, is to crowd it with highly-refractile oil or fat globules. As the density of the deposit produces narrowing of the tubes, so do the fat granules crowd together; but they do not coalesce, as in the compressed tubuli uriniferi; and even when the tubes are obliterated here and there, their *cul-de-sac*, globular, or spindle-shaped endings, are rendered apparent by the refractile globules within.

In the lymphatic glands, the tubular ducts and their network in the true gland suffer, from the presence of tubercle, both obliteration and fatty deposit. The tubules are crowded with fat globules as in the testicle, but the pressure of the deposit around them does not destroy the basement membrane here and there and form blind ends loaded with fat, but produces the entire absorption of the affected tubules, their former position being marked by lines of free oil or fat globules.

The occurrence of fat globules in epithelium cells may, in these instances, be produced by a chemical change in the cell-fluid, consequent upon the impairment of the nutrition of the mucous membrane in contact with a lowly organised deposit; and with the observed alteration in the epithelium in the tubules of the kidney before one, there is a reasonable probability that the epithelium of the seminiferous tubes was the eliminator of the fat globules observed in these delicate cylindrical formations. In the instances of the kidney, testicle, and lymphatic system, the deposit of the tubercle takes place from the vessels around the tubuli; but in the lung, I have observed what has been so often asserted by microscopists,—viz, the air-cells filled with tubercle, and obliterating, by their increased bulk, all trace of inter-cellular space.

Colchester, 1864.

ON SECONDARY SYPHILIS TREATED BY A NEW PREPARATION OF IODINE, &c.

By J. C. CHRISTOPHERS, Esq., F.R.C.S.

THE good results ordinarily obtained from treating cases of secondary syphilis by the various official preparations of iodine are universally known, yet there are cases which resist their influence, and there are constitutions which rebel under their administration. The object of this paper is to introduce to your notice a new preparation, perhaps a new compound, which, combining the good effects to be derived from iodine, is devoid of its disadvantages—a preparation which, in my hands, has proved valuable in curing cases of secondary syphilis which had previously resisted the beneficial action of iodine in all its usual combinations and forms—a preparation, moreover, which does not produce the evil effects of iodine in those constitutions with which that substance is known to disagree.

My experience of the action of this remedy is limited to cases of secondary syphilis; but in the hands of some other surgeons, I am told, it has been found efficacious in cases of scrofula, anæmia, and in the furunculoid plague which has infested this city during the last three or four years.

To Mr. Hockin, the chemist, in Duke-street, (who manufactures it under a patent granted to M. Dupont,) I am indebted for my knowledge of this preparation, and for its formula. There are, indeed, two preparations: the one (that which I have found so useful in treating cases of secondary syphilis) he names "liquor cinchonæ hydriodatus;" the other, (that which has been found useful in treating boils, anæmia, and scrofula,) "liquor cinchonæ hydriodatus cum ferro." The former contains in one fluid drachm of liquor, twelve grains of cinchonæ flav., and one grain and a half of iodine, in the form of hydriodic acid. The latter contains in addition to the former ingredients, one grain of protoxide of iron in each fluid drachm of the liquor. These preparations are produced by exhausting the powdered bark with an aqueous solution of hydriodic acid; then with water, and the liquor is subsequently evaporated to the above bulk.

The circumstance that the iron compound ever remains in a state of proto-salt, and that the liquor never, either by time or by exposure, becomes inky, through the action of the tannic principles in the bark, goes to show that there is here something more than a mere mixing of ingredients, and that some new combination of iodine, the cinchona alkaloids, and the peculiar tannic principle exists in it, which the fact corroborates, the same materials act differently when used singly, together, or when otherwise combined.

The dose in which I have prescribed these preparations varies from one drachm to three drachms of "the liquor cinchonæ hydriodatus," and from fifteen minims to two drachms of "the liquor cinchonæ hydriodatus cum ferro;" and in these doses I have not found any of the evil effects arise which smaller doses of other preparations of iodine have been known to produce.

I must not omit to say, (inasmuch as I attach much importance to its use,) that in some of the successful cases treated by means of the preparation described, I have also employed the hot-air apparatus, in order to produce profuse sweating, and always with marked good effect. Indeed, I do not know a more potent remedy for intractable and inveterate cases of secondary syphilis than this is.

The ancients recognised the great advantages of sweating their patients when treating them for this disease and most of the authors of an early period, prescribe it as a remedy, and some of them give elaborate directions for producing and for prolonging its effects. They describe the sweating by medicines, sweating in bed, sweating in a hot-house (whenever it can be procured), and sweating by labour, and either of these processes they designated the "sweating course."

It has occurred to me to find that it is far more difficult to cure secondary syphilis in the higher than in the labouring classes, and I have thought that the daily occupation of the latter, whereby the skin is forced into constant action, may in some measure account for it.

Opium was at one time considered to be a specific for syphilis. I have found it useful, and most so in those cases in which it produced free perspiration—its very usual effect.

The use of the hot-air bath is impeded by the thought that it entails a difficult and complicated apparatus, and that it cannot be used by the patient when at home. It is not so. Few things are more simple, easier of access, or less costly than it, and the patient can be submitted to its action in his own bed. There are many forms: one of the most simple was employed by Dr. Wilson, in the Middlesex Hospital, with good effect; another by Mr. Kurtz, a chemist at Liverpool. The former was employed for sweating only; the latter for sweating, and for the administration of iodine and sulphur.

York-place, Portman-square, August, 1856.

AN EASY AND EFFICIENT MODE OF TREATING INVERSION OF THE NAIL OF THE GREAT TOE.

By J. BROKE GALLWAY

SURGEON ROYAL ARTILLERY.

Communicated by DR. ANDREW SMITH.

A GOOD deal has been enunciated from time to time of late years upon the most legitimate line of practice necessitated by the frequency of an affection of no very dignified pretension in the catalogue of surgical woes, but for all that possessing strong claims to our notice from the suffering occasioned by its presence, and still more from that attendant upon the means in common use for its relief—in-growing of the nail of the great toe.

In systematic works on surgery, the acknowledged line of practice for this condition is the barbarous rule of forcing a sharp instrument from the free edge up to the root of the nail, and tearing the

latter away by a process of evulsion—an operation which is certainly deprived of much of its suffering by chloroform, though still the opprobrium of surgery to the eye and the imagination. The periodical press has teemed with modifications of and improvements upon this practice.

I have found the following little expedient attended with but trifling pain, while it offers a most efficient remedy for the evil:—With a fine and well-tempered file, let a vertical incision be carried down to the matrix, from the root to the free margin of the nail, a few lines from the lateral border, according to the degree and extent of the inversion. This part of the step can be performed by the patient himself, and at his own leisure, which in private life has the advantage of robbing the operation of much its terrors. It is easily effected, and, I need not say, painless. When thus prepared the surgeon should gently seize the divided edge of the smaller section with a pair of broad-bladed dissecting forceps, and with an infinitesimal amount of tractile and of slightly jerking force tear the offending portion of the nail from its bed and lateral connexions. It is really a very neat operation, and most satisfactory in its results. It should be repeated at the opposite border of the nail, supposing both lateral margins to be inverted.

By this little expedient I have lately resuscitated a poor fellow who had become quite lame in both feet from this condition.

Corfu, July, 1866.

ON AN IMPROVED METHOD OF OPERATING FOR STRABISMUS.

By C. HOLTHOUSE, Esq., F.R.C.S.E.

SURGEON TO THE WESTERN DISPENSARY FOR DISEASES OF THE EYE;

ASSISTANT-SURGEON AND LECTURER ON ANATOMY TO THE WESTMINSTER HOSPITAL.

SOME time since I called the attention of the profession to a method of operating for strabismus, which had given me more favourable results than I had seen obtained by any other means. Since then I have performed many more operations according to this method, and am so convinced of its *superiority to all others*, that I make no apology for again introducing the subject. Before doing so, however, it may be as well to state briefly the results which follow the operation when done in the ordinary manner.

"In no case," observes Mr. Bennet Lucas, "did the incision of the conjunctiva heal by the slightest approach to immediate union; on the contrary, in the most favourable operation the edges of the incision of the conjunctiva were fully a line distant from each other, and in the majority of them, they were even more distant than this. Again, the conjunctiva, in a few cases, was movable over the sclerotic coat, in the site of the cicatrix; but in the majority, both membranes were adherent in this situation." Further on, he observes: "It occasionally happens that the healing process does not proceed so satisfactorily as has just been described,

and at the end of eight or ten days granulations shoot from the sub-conjunctival cellular tissue, and rise between the edges of the conjunctiva; and a case," he says, "had been communicated to him, in which abscess within the orbit followed the operation."

Dr. Mackenzie remarks: "Some of the unfavourable effects that are apt to arise from the operation are trivial, but others are important." Amongst the first, he mentions "the white cicatrix of the conjunctiva left by the operation;" and he then goes on to observe: "The eye which has had the adductor divided presents a greater gap between the cornea and caruncula than natural; the caruncula is more sunk; the lids more open, the eye more prominent and convex, at the nasal angle. . . . If both eyes have been operated on, both are rendered more prominent than natural, but, being equally so, the circumstance attracts less notice; but if one eye projects, and the projection is great, the physiognomy is very remarkably and disagreeably affected." Further on, he observes: "One of the most annoying consequences of the operation is inordinate eversion of the eye when the adductor has been divided, which is followed by a disagreeable expression of countenance, giddiness, and such a degree of double vision as unfits the patient for pursuing any employment, and even for walking about with both eyes open. This *contretemps* he illustrates by the following case:—

"A young lady from the west of Scotland calling upon me with slight convergent squint, I advised her against any operation. She went to Edinburgh, where she was to be operated on without letting her friends know, the operation was so very easy, and she was to return with her eyes straight. In two or three days, severe inflammation followed the operation, with great swelling of the eye, requiring the application of leeches, and keeping her in bed for six weeks. The eye turned to the temple, and she went home ashamed to let herself be seen."

Another drawback to the operation is a return of the inversion in the eye that is operated on within a week or two, and which this author attributes to "the reciprocal affection of the two eyes not being overcome," but which I have reason to believe is sometimes caused by the contraction ensuing on the cicatrization of a large conjunctival wound.

Such, then, according to our best writers, are some of the consequences of the ordinary operation for strabismus, all, or nearly all, of which may be avoided, and, indeed, cannot take place, if the operation be done sub-conjunctivally.

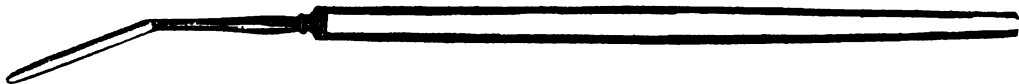
This sub-conjunctival mode of dividing the faulty muscle in strabismus, which is merely an extension of the principle of the subcutaneous section of tendons in club-foot, was, I believe, first recommended and practised by M. Guérin, in France. In 1848, my friend and colleague, Mr. Charles Brooke, wrote a paper on the subject, in which the defects inseparable from the ordinary method of operating were portrayed and the sub-conjunctival section proposed as a remedy; but his little essay does not appear to have received the attention it deserved.

From that time till the publication of my lectures, two years ago, the operation had been scarcely noticed by any English writers except for the purpose of condemnation. In that work I ventured for the first time to draw the attention of the profession to its merits, and pointed out its advantages in the following words:—

"In the first place, the small puncture made by the scissors is entirely covered by the lower eyelid, so that not only is there no breach of continuity visible in the conjunctiva, but all air is excluded from the wound, and thus the accession of inflammation is prevented. Secondly, the relations of the conjunctiva to the eyeball and the eyelids being undisturbed by the operation, the symmetry of the two eyes is preserved, and the plica semilunaris and caruncle maintain their normal position. Lastly, it is followed by less protusion of the eye than results from the ordinary method of dividing the muscle."

The above advantages are so obvious and decided, that I was not surprised on my return from the East, to find that Mr. Critchett had also come

forward as the champion of this principle, and that his method of performing the operation, as set forth in a former number of *THE LANCET*, had been adopted by some of his colleagues of the Royal Ophthalmic Hospital, Moorfields. It is not my intention to criticize either his or other operations that have been undertaken subconjunctively; I will merely observe that, having seen them performed by their respective inventors, and having practised them myself with their own instruments, I consider them inferior both in simplicity and effectiveness, to that which it is the object of this paper to recommend. The operation, we will suppose for convergent strabismus, is thus performed:—The eyelids being held apart by the spring speculum, and the eye drawn from its unnatural position, a small incision must be made with a probe-pointed pair of scissors, through the conjunctiva and ocular fascia down to the sclerotic; this should be made three or four lines internal to the cornea, a little above or below a line horizontal with its upper or lower border, according as it is elected to divide the muscle from above or from be-



low. Into the aperture made by the scissors, the knife represented in the annexed woodcut is introduced and passed underneath the muscle; its back must then be turned to the sclerotic, and its sharp edge towards the tendon of the rectus, which quickly yields to the slightest sawing movement of the knife, and generally with a very audible crack; the instrument must now be withdrawn through the same aperture at which it was entered, and the operation is completed.

The knife figured in the above engraving was designed by myself, after repeated trials of a variety of instruments on the dead subject. Neither M.

Guérin's knife, which has a convex edge, nor Mr. Brooke's, which has a concave one, can be depended on for dividing completely the muscle only without the conjunctiva; nothing but a cutting edge perfectly straight will effect this. The angle which the blade of the knife forms with its handle facilitates its introduction beneath the muscle, and approximates it to the form, as, indeed, it subverts the purposes, of the blunt hook, while its blunted extremity protects the sclerotic from injury, and thus does away with the necessity for a director. As a further protection to the sclerotic, I have lately had this knife slightly beaked at the extremity.

Storey's-gate, St. James's-park, 1856.

A Mirror OF THE PRACTICE OF MEDICINE AND SURGERY, IN THE HOSPITALS OF LONDON.

Nulla est alia pro certo noscendi via, nisi quam plurimas et morborum, et dissectionum historias, tam aliorum proprias, collectas habere et inter se comparare.—MORGAGNI, *De Sed. et Caus. Morb.* lib. 14. Proœmium.

GUY'S HOSPITAL.

Loose Cartilage in the Knee-Joint; Attempt to remove it from within the Joint by Subcutaneous Incision; subsequent removal by Excision; Cure.

(Under the care of Mr. BIRKETT.)

MOVABLE bodies are occasionally met with in the cavities of the different joints, such as the elbow, the shoulder, and the lower jaw, but they

are by far most common in the knee. Although generally quite loose and detached, now and then they are found connected with some part of the articulation by means of a pedicle or narrow neck, and they vary in number from a single one to two or three, although as many as fifty or sixty have been found in a single joint; as a rule, however, one only is generally present.

As to their real nature, Mr. Erichsen observes that "These bodies in many cases, are not truly cartilaginous, but appear to be composed of masses of condensed and indurated fibroid tissue, not very dissimilar in structure to the watery synovial membrane just referred to. In other cases, however, it is probable that they may be of a truly cartilaginous formation."—"Science and Art of Surgery," p. 618.

Mr. Syme describes them as having a glistening pearly lustre, and when divided they are found to consist of a gristly substance inclosed in a firm

capsule, with a bony nucleus in the centre. In the examples we have had the opportunity of seeing, they proved to be wholly composed of cartilage, which was the case with the example we now record. The point of the greatest interest in their natural history, however, relates to their origin: and whatever this may be ascribed to,—such as effusion and organization of blood and lymph; separation of a fractured articular portion; and the separation of morbid growths from the margin of the cartilages,—we think most surgeons will agree with Mr. Syme, that the last of these explanations is, on the whole, most probable. The specimen in Mr. Birkett's case had all the appearance of having been broken off one of the larger cartilages, as for example, one of the semilunar; as its thickness, oval shape, and semicircular margin somewhat resembled a portion of this cartilage. The patient's history would seem to point to something of the kind, for his knee gave way when lifting a heavy weight, followed by inability to extend the joint for a few days, when the loose body was distinctly felt. Mr. Birkett made an effort to remove it in the manner recommended by Mr. Syme; it did not, however, give liberty to the loose body; but by careful strapping, &c., it was retained *in situ*, and partly adhered to the inner side of the joint. This result permitted of its escape more readily on a subsequent occasion, when a valvular incision was made over the body, through the synovial membrane. Not a drop of synovia escaped, and with great care the man got well, without a single bad symptom. Every surgeon is well aware that this very simple operation is sometimes attended with considerable risk of life and limb; and the late Mr. Liston, from a case of this kind, where the limb was saved with difficulty, the joint becoming ankylosed, was disposed to dissuade from operative interference altogether, unless the patient should be willing to assume the responsibility of the consequences on himself.

M. W——, aged twenty-two, an Irish labourer, in good health, muscular and well made, but of a fair and delicate complexion, was admitted on March 17th, 1856. In July, 1855, whilst lifting a heavy weight, the right knee gave way, and the patella seemed as if it were displaced. He was unable to extend the joint fully; but after a few days he did so, and he then perceived a moveable body in the joint. Since that time he has had more or less pain, and a sensation of weakness in the knee, particularly when flexing it, or in the action of going up stairs. The body, which moved freely about in the right knee-joint, was generally readily found at will, and was supposed to be a "loose cartilage."

On April 1st, an attempt was made to remove the cartilage from the articular cavity by making a subcutaneous incision. A needle was passed into the cartilage to fix it, and an incision was made along and upon this body. There was, however, no evidence that it was removed outside the capsule of the joint. It was then fixed by means of small rolls of plaster and strips of the same

material over the internal condyle of the femur. A straight splint was adjusted, and the limb bandaged to it, and an iced lotion of the diacetate of lead was constantly applied.

2nd.—Slightly feverish; a little pain on the inside of the knee. A piece of ice was placed on the knee, and allowed to remain until melted, and then another piece was applied.

3rd.—Less pyrexia and pain in knee.

The limb was kept extended for seven days, and then the cartilage seemed fixed over the internal condyle. The extended position and entire rest was maintained until April 22nd (twenty-two days), and the patient was very desirous of having it removed.

22nd.—A valvular incision was made over the cartilage to the synovial membrane, the body being prevented sliding away with the fingers. Directly the synovial membrane was cut, the cartilage escaped. The edges of the incision were immediately brought together, and maintained in their relation by strips of plaster. No synovia escaped. Ice was applied over the joint. The extended position was maintained by a straight black splint. The loose cartilage was three-quarters of an inch in its longest diameter, oval, and flattened.

23rd.—Slight pain in joint; no pyrexia; but loss of appetite; bowels confined. To have an aperient; fish diet; and cold-lead lotion instead of ice.

27th.—Quite well; no pain. The cutaneous wound has not united by adhesion, but the deep tissues have. To apply dry lint; omit lotion.

May 7th.—Wound entirely healed; splint removed.

11th.—Arose from bed for the first time since last operation. Knee-joint stiff, and slightly swollen.

June 10th.—He left the hospital, having regained the use of the joint, and being quite well.

Stone in the Bladder for some Years, associated with great misery and suffering; Purulent and Phosphatic Urine; Lithotomy; Removal of a Stone composed of Triple Phosphate, the size of a Hen's Egg; Fatal termination; Extensive Disease of the Kidneys and Bladder.

(Under the care of Mr. COOK.)

Four cases of stone have been operated upon within the last three months, at Guy's, upon male patients, of the respective ages of three, fifteen, fifty-nine, and seventy years; the two first went out cured, and the two last terminated fatally. We record one only to-day, but will give the other three in our next number.

We cannot feel surprised at the success of the operation of lithotomy, almost as a rule, in early life, when we remember that the various conditions which so much influence its result in the adult and in the aged are so seldom found to be present in the young—as, for instance, the size of the stone, the condition of the genito-urinary organs, and a tendency to the development of inflammatory affections, which carry off so many patients, not alone affected with stone, but with other urinary

diseases. In the table of mortality of lithotomy, according to age, which is given in Mr. Coulson's standard work, "On Lithotomy and Lithotripsy," page 365, he mentions that, beyond seventy, the number of cases is so small, that no deduction can be safely drawn from them. He, however, extracted a calculus from the bladder of a patient in his eighty-first year, with perfect recovery, and there are very few successful cases so old on record. The following are enumerated by Mr. Coulson, in the same work, as the causes of death in lithotomy:—

"The most formidable accidents of the operation of lithotomy are, hæmorrhage, infiltration of urine into the cellular tissue of the pelvis, suppuration and abscess of this tissue, inflammation of the bladder, peritonitis, purulent infection, and finally secondary diseases of the kidneys, or other parts, excited by the irritation which the operation has produced. The 'shock' is also an occasional cause of death; but since the discovery of chloroform, this accident has lost so much of its gravity, that it seldom gives rise to a fatal result."—p. 227.

In the following case, death was produced by the condition of the kidneys and bladder. The sufferings of the poor patient during life were positively dreadful. He had been the subject of stone for five years, but it was never suspected until, on admission, when it was detected the moment a sound was introduced; in fact, it would have been difficult to avoid striking it, from its size and immovable position. The urine was loaded with pus and phosphates, which, together with the size of the stone, rendered his life miserable in the extreme, especially as he had constant micturition, with an impossibility to completely empty the bladder. In this condition, he actually begged that an operation might be performed to afford even a few days' comfort and relief. Mr. Cock, under these circumstances, consented to perform it, and extracted a stone, three inches long, not unlike a kidney-potato in shape. Its removal was effected with some difficulty, on account of its shape, and from its being firmly lodged in a distinct pouch at the lower part of the bladder. The incision was necessarily large, and although the operation was not a long one, there was a good deal of blood lost. On cutting into the bladder, a quantity of pus came away. The man never rallied, and death ensued in seventeen hours. The kidneys were found inflamed and filled with pus, and perfectly useless as depurating organs. The ureters and bladder were also diseased; the sub-mucous tissue of the latter was infiltrated with pus.

We have availed ourselves of the notes of Mr. Broad, the dresser of the patient.

Henry B—, aged fifty nine, a hair-dresser, residing in Dorsetshire, was admitted into Naaman ward, May 23rd, 1856. He is a fine, well-developed man, has always enjoyed good health, never suffered from rheumatism or gout, has lived a temperate life, and is married.

History.—He states that about six years ago, whilst playing at cricket, he was obliged to go and

micturate, which he did over some nettles, and found that there was some red sand deposited on them. He did not experience any pain at this time whilst passing his urine. Since then he has noticed more or less of a whitish deposit, with some mucus, in his urine. One of the first symptoms which attracted his notice was the frequent desire to micturate; then cutting pain in the perinæum and in the end of the penis immediately after having emptied his bladder; then the stream would stop, and he would have to strain violently, and found that he could pass it more easily lying down. He has experienced great pain when walking quickly, or riding on horseback; has never suffered from pain in the loins or sickness; has had rigors and sweatings. He has had a sound passed several times, but a calculus could never be detected. The symptoms gradually becoming more and more severe, he was advised to come up to Guy's.

On admission his face had an expression of great anxiety and considerable suffering; it was bedewed with perspiration. His appetite had been failing for some time past; tongue covered with brown fur; bowels confined; slight cough, which caused him great pain; pulse compressible, full, 90. Complained of great pain, principally in the perinæum; had to strain violently. The urine contained a quantity of mucus and pus, also crystals of the triple phosphate; it was of a dark straw colour, and of an ammoniacal smell. Ordered some castor oil, full diet, and three ounces of brandy.

May 27th.—Complains of great languor, has profuse perspirations, and suffers from continual thirst. In much the same state. He was ordered ammonio-tartrate of iron and bicarbonate of potash, in a julep of citrate of potash, thrice a day.

31st.—He still suffers great pain on the least motion; passes his urine several times during the night; his face and conjunctivæ appear congested; headache; bowels confined; tongue brown and dry. Ordered a simple enema; sherry, eight ounces.

June 1st.—He is to have the bladder washed out with warm water three times a day, and afterwards to have two ounces of the following lotion, injected, and allowed to remain in:—Nitric acid, one drachm; water, twelve ounces. Morphia, half a grain, every night; diet, anything he can take. The injection of the lotion gives him sharp pain for some time after, principally in the urethra; the pain is less in the day, but becomes worse towards the night. He says he feels much better in health, and he certainly looks better.

2nd.—Ordered decoction of Iceland moss, with new milk, sugar and eggs.

6th.—To-day he has had a mutton-chop for dinner; sleeps better at night. The warm water injection gives him relief. He has felt a pricking sensation in the bladder whenever he moves; he never entirely empties the bladder. Dr. Rees has seen him, and ordered a mixture composed of tartrate of potash, tincture of henbane, tincture of hops, and julep of cascarrilla, thrice a day. The decoction of Iceland moss and milk to be continued.

9th.—Every time Mr. Cock has passed a sound he has always found the stone in the same place. "You can't get into the bladder without touching it." It appears a very large one. Having no hope of relieving his distress in any other way than by an operation, Mr. Cock intends removing it, as it is the patient's urgent request.

10th.—Operation. Having been put under the influence of chloroform, he was placed in the position for lithotomy. Mr. Cock began by making a lateral incision of about three inches in length, and then cutting into the bladder. A quantity of urine and pus escaped; the blood flowed pretty profusely. The stone forceps were then introduced, but the bladder was so contracted as scarcely to admit of the blades being separated. He managed to grasp the stone, but it was so firmly attached to the bladder that twice only portions came away. The scoop was then introduced, and with the aid of his finger he succeeded in detaching it. He then introduced the forceps again, and drew out the calculus by its long axis. It was as large as a good-sized hen's egg, made up of triple phosphate. A sponge was then applied to the wound, and the patient was removed to his bed. The operation lasted about six minutes, and he lost a larger quantity of blood than usual, on account of the larger incision. The patient soon recovered from the influence of the chloroform; his pulse, which before the operation had been 90, soft and compressible, after the operation was 98, full and incompressible. He was not sick. After the operation he was ordered a drachm of laudanum and four ounces of brandy.

11th.—The patient appeared to be doing very well until early this morning, when he began to show symptoms of exhaustion, and at about five o'clock he died, having lived between sixteen and seventeen hours after the operation, subsequent to which there was no hæmorrhage.

Necropsy, ten hours after death.—Rigor mortis present. On inspecting the abdomen, there was a considerable quantity of fat in the superficial fascia. On opening this cavity the cæcum was found pushed out of its position, and was situated in its centre, and of a purplish colour. The liver was large and fatty, weighing 5lb. The kidneys were very much diseased; the capsular membrane was thickened and adherent to the fat and cellular tissue in the loins, so that the kidneys were removed divested of their coverings; the cortical portion was irregular and constricted in parts, and full of white deposits of pus; the tissue was soft and red, and in a state of inflammation; the pelves were very distended, and contained fetid watery pus; the mucous membrane was injected. The ureters were distended and in the same condition as the mucous membrane of the kidneys. The bladder showed no disease upon its abdominal aspect, but was rather contracted; upon opening it, the interior presented two portions, having different aspects; at the neck there was a pouch where the calculus had been impacted, and above this the more healthy looking bladder which had held the urine; the latter part was somewhat thickened

and the mucous membrane inflamed, but otherwise not much diseased; the lower portion was very different, for a distinct, raised, soft, vascular edge projected around the sacculus, at the part where it had come in contact with the stone. Upon cutting through the coats of bladder, they were found very soft. The prostate was enlarged but healthy; it had been extensively divided.

Stone in the Bladder of a Man seventy years of age, with great Irritability of the Bladder; Lithotomy; Removal of the two Circular and Flattened Uric Acid Calculi; Infiltration of Urine; Sloughing of the Scrotum; Death; Necropsy.

(Under the care of Mr. HILTON.)

We resume, in continuation, the consideration of the cases of stone. The following case, of an old man, promised to do well after the operation; but, from some unforeseen cause, infiltration of urine into the cellular tissue occurred, which ended in sloughing and exhaustion of the vital powers, and death put an end to the scene. As contrasted with the case of last week, under Mr. Cock's care, the kidneys and bladder were but slightly diseased, the former being in a fatty condition, but still able to perform their functions to some extent, whilst the latter had its coats hypertrophied, and some infiltration of blood around it. The only lesion of importance found after death was the condition of the scrotum, and infiltration of the cellular tissue of the pelvis, without suppuration, but possessing a dark colour, abundantly sufficient to produce a fatal result. The interesting peculiarities of this case are, the age and the number of the calculi removed. We dwell upon the former in our remarks upon the first of Mr. Cock's cases. With respect to the latter, we will observe that in about one-fifth or one-sixth of the cases operated upon several calculi will be found; from two to six or eight are said to be by no means uncommonly met with. Not unfrequently, however, very many more than these have been found in a single bladder, as detailed in the various standard works: thus, Erichsen has met with 15; Leroy d'Etiolles, 15, 20, and 30; Civiale, 40; Sir Astley Cooper, 140; Desault, 200; Boerhaave, 300; Murat, 678; and Physick, upwards of 1000. If the number should seem great, the size, as a matter of course, must be exceedingly small. In Mr. Hilton's case, the diameter of the two calculi was about an inch. We have seen four of a similar size removed from a single bladder.

For the notes of the present and two following cases we are indebted to the kindness of Mr. Edmund W. Valentine, the house-surgeon to the hospital.

John H—, aged seventy, admitted April 9th, 1856. He has suffered from great irritability of the bladder, and has had symptoms of stone two years and a half, the stone being readily detected by the introduction of an instrument on admission.

May 20th.—The patient being placed under the influence of chloroform, Mr. Hilton performed the

usual lateral operation, and extracted two stones, weighing 190 grains, composed of uric acid, circular in shape, and nearly an inch in diameter, but flattened. After the operation (which occupied from first to last about four minutes) he complained of pain, and was ordered twenty minims of laudanum.

21st.—The patient passed a comfortable night; the urine passes freely through the wound.

22nd.—Extensive infiltration of urine into the scrotum and surrounding cellular tissue has taken place. Incisions were made in the most depending parts. Ordered bark, ammonia, and wine.

23rd.—Slept well during the night; tongue coated with a brown fur; complains of great thirst. Ordered brandy in addition to the other stimulants.

24th.—Tongue dry and tremulously protruded; great thirst; vomits frequently; pulse 90, irregular and feeble; wound and scrotum looks dark and congested.

The patient died on the 25th.

Post-mortem Examination twenty-two hours after death.—Rigor mortis well marked. Entire scrotum in a state of slough. Abdomen: the intestines appeared generally healthy; no pus in the cellular tissue of the pelvis, which appeared rather soft and of a dark colour; slight infiltration of blood around the bladder. Liver and kidneys fatty. Ureters not dilated. Bladder much contracted; coats hypertrophied and slightly diseased. Lungs softer than natural, readily giving way on pressure, and contained an increased amount of serum; pneumonia of the dying present. Heart: aortic valves thickened; excess of fat externally.

Stone in the Bladder of a Boy for four years; Lithotomy; Extraction of a Mulberry Calculus; Cure.

(Under the care of Mr. COOK.)

The patient in this case was a lad, George P—, aged fifteen years, of healthy aspect, who had had the symptoms of stone for four years. He suffered very little inconvenience from the presence of the stone, and nothing whatever was wrong with his urine. On the 1st of July Mr. Cock performed the lateral operation, the patient being under the influence of chloroform, and extracted a mulberry calculus the size of a walnut. We do not remember having ever witnessed a stone that so much resembled an actual mulberry as this one, either at an operation or in a museum, and it attracted the attention of all who saw it. The progress of this case was very satisfactory indeed, permitting of the departure of the lad from the hospital on the 21st of July, cured.

Stone in the Bladder of a Strumous Child, with well-marked Symptoms for Eight Months; Lithotomy; Cure.

(Under the care of Mr. CALLAWAY.)

The symptoms of stone in this little patient were those so commonly met with in children, but perhaps somewhat aggravated by the possession of a very delicate and weakly constitution. Notwith-

standing this, the operation proved satisfactory, thus confirming the assertion that it is one of the most successful in surgery at the early periods of life. A similar one performed by Mr. Lawrence at St. Bartholomew's on the 12th of April on a child, from whose bladder a stone the size of a large bean was removed, proved successful. Another case at St. George's on the 20th of March by Mr. Cæsar Hawkins, on a boy, also terminated well. In fact, recent examples could be multiplied of cures in children by lithotomy. The following case is an abstract of the notes of Mr. Holmes, the dresser of the patient:—

Arthur P—, aged two years and nine months, living at Lambeth. He is a weak, strumous-looking child. His mother states that he was very healthy for about eighteen months after birth, after which time he began to decline in health, losing his appetite, and becoming very weak. About ten months ago he had an attack of paralysis, affecting the upper and lower extremities, which continued for three weeks, after which time he recovered, and has not had a similar attack since. Eight months ago his mother first noticed that he had great pain and difficulty in micturating, the urine sometimes dribbling away, and at other times passing in a full stream, and then suddenly stopping. The patient was habitually pulling forward the prepuce to ease the pain. After the last drops of urine had passed he used generally to cry violently. He complains of thirst; tongue moist and slightly coated.

June 18th.—The patient being placed under the influence of chloroform, Mr. Callaway extracted the stone by the lateral operation.

26th.—The urine all passes through the penis; wound healing.

The patient went out quite well.

LONDON HOSPITAL,

Epithelial Tumour of the Palate in a Jewess, Aged Sixteen Years; Excision of a Portion of the Superior Maxilla; Examination of the Tumour by Dr. Andrew Clark; Recovery.

(Under the care of Mr. CUELING.)

In the preceding cases, the jaw-bone itself was the subject of disease requiring an operation of a formidable character to eradicate it. The following case, however, differs from either of the foregoing in the fact that the bone was only affected to a slight degree; but from the peculiar nature of the affection, it was deemed necessary to remove a portion only of the superior maxilla—that part of it immediately in contact with the cancerous mass. The growth of this, which had attained the size of a hen's egg, had occurred within a period of two months, although there seems to have been indications of its earlier commencement; it had somewhat increased in size ever since her admission into the hospital. As in the others, the cure was perfect and rapid, with very little deformity indeed; and the operation was done without chloroform. Many surgeons avoid its use in operations

about the face and throat, but when given by an experienced and careful person, we think there is not much danger as is anticipated. On this occasion, nevertheless, the poor girl gave evidence of such genuine courage, that Mr. Curling preferred operating without it. For the notes of this interesting case we are indebted to the kindness of Mr. W. W. Harkness, the dresser of the patient.

A good-looking Jewess, aged sixteen, was admitted into the hospital April 15th, 1856. Six months before she was seized with toothache in the right upper jaw, which was followed by swelling of the face. For two years she has occasionally had slight bleeding from the gums; but this was considered of no consequence until two months ago. At that time, a swelling commenced just above and behind the upper incisors, and increased towards the soft palate. Five weeks ago it was lanced, but only blood proceeded from it. Fourteen days afterwards, she was seen by Mr. Coulson, who again lanced it; but this operation was followed only by bleeding. The day before admission, a grooved needle was introduced, but nothing but blood escaped; this flowed freely and per saltum, and it was necessary to use pressure with the finger to stop the hæmorrhage. The swelling appeared of the shape and size of a hen's egg, apparently projecting from the hard palate, occupying the whole of the right half of the roof of the mouth, and extending across the mesial line to a small portion of the left half; posteriorly it extended to the edge of the hard palate, but did not seem to implicate the soft palate. On passing a probe along the floor of the nose, no tumour could be felt. The tumour felt rather dense and elastic, and firmly attached to the bone. It did not project externally. A small ulceration existed in the mucous membrane of the palate, which covered the lower half of the tumour. Two or three attacks of rather extensive hæmorrhage took place apparently from the back of the tumour, for which a saturated solution of nitrate of silver was used. There has never been very much pain in the tumour.

April 19th.—The first and second right upper molar teeth were extracted; the first was quite loose and the second was adherent to a small portion of the alveolar process, which came away with it. A good deal of hæmorrhage and pain, with swelling of the face, followed the operation.

The other surgeons having concurred in the propriety of excision of the tumour and part of the upper jaw, the operation was performed by Mr. Curling on April 25th. Chloroform was not administered. The patient was seated in a high-backed chair, with her head resting on the back, and supported by the hands of an assistant. The soft palate was transfixed with a double-edged knife, and detached on each side, in its whole length, from the hard palate. The left lateral incisor and first bicuspid were then extracted. An incision was made through the cheek, from the centre of the right ala of the nose to the angle of the mouth, corresponding with the fold at the an-

terior edge of the buccinator muscle. The labial mucous membrane was detached from the upper jaw, and the flaps reflected to the right and left. The septum nasi was divided with a pair of cutting forceps; a small keyhole saw was passed into the left nasal fossa, and the hard palate sawn through, as was also partially the alveolus of the upper jaw, in the situation of the left lateral incisor; the remainder was divided with cutting forceps. The alveolar part of the upper jaw was sawn through in a horizontal line, below the malar tuberosity, and the whole portion, with the tumour attached, was seized with a strong pair of forceps, and dislocated from its connection with the sphenoid bone. After the division of some of the soft parts, the operation was completed. There was a good deal of hæmorrhage, but no vessel was ligatured. The perchloride of iron was used once, and wool was stuffed into the cavity. Five sutures were introduced into the external wound, and the patient was sent to bed. She was ordered forty minims of laudanum at once. She afterwards became rather hysterical, and was ordered some chloric ether and laudanum in camphor mixture.

26th.—Slept pretty well; pulse 120, soft; skin moist; complains of pain under the lower jaw and in the throat on swallowing. The edges of the external wound are in close apposition. It is covered with strips of wet lint and oiled silk. In the evening there was some cedema of the cheek. Is taking wine, four ounces, two eggs, arrowroot, and broth.

27th.—There is less cedema; the discharge from the mouth is very fetid. Two sutures were taken out, and the edges seem to have united. One strip of strapping and wet lint are used. Is taking wine, six ounces, and the ether draught.

28th.—Slept pretty well. Has some pain in the head. The greater part of the wool was removed, and the mouth was syringed out with a lotion of chloride of lime. One suture was removed; the wound has entirely united. Ordered, porter, half-a-pint.

29th.—The two remaining sutures were removed. Ordered, effervescing ammonia mixture.

May 11th.—Some more wool came out with the discharge, and the mouth is syringed out daily with chloride of lime and warm water. Complains of pain in the throat.

16th.—A small piece of necrosed bone came away from the edge of the upper alveolar process. She can eat meat, and goes out daily.

June 3rd.—She was made an out-patient. The wound in the palate has continued to granulate without any sign of return of the disease. There is still a discharge from one point, which is painted twice a week with a solution of nitrate of silver. The soft palate hangs in its natural situation, and the annoyance of liquids passing into the nose during deglutition is now very trifling. The alteration of speech is slight, and there is very little deformity externally.

Dr. Andrew Clark's report of the tumour is as follows:—The tumour is about the size and of the shape of a hen's egg. It is invested by a con-

denser layer of areolar tissue, and loosely connected with the periosteum of the adjacent bones. At one point—the posterior and inferior edge of the zygomatic surface of the superior maxillary bone—it had a limited but distinct osseous attachment. The tumour therefore might have been shelled out at all points but this. The tumour lies between the naso-palatine portion of the right maxilla and the mucous membrane. The mucous membrane over the tumour is hypertrophied, and exhibits an oval ulcer with thick, rounded, white margins, and a reddish, smooth base. The naso-palatine part of the superior maxilla is elevated and thinned; the periosteum is loosely attached to it, and at one point the bone is a little “opened up” in texture. The tumour is soft, slightly elastic, and vascular. The cut surface is of a dead-white colour, distinctly granular, like rough honey, crumbly-looking, and studded with red or pink blotched parts sunk below the general level. On further examination, it appears to be permeated by a kind of glairy substance, (colloid matter,) which helps seemingly to give coherence to the tumour. To the naked eye the tumour resembles, in some respects, a cephaloid or myeloid mass. To the latter it bears the greatest resemblance in general character, seat, and structure. The microscopic characters are those of epithelial cancer; epithelial cells in all stages of development and of the most various forms, together with a few nest-cells and fat. The mucous membrane over the tumour, though not continuous with it, presents the same structural characters. This decides the doubt between the epithelioma and myeloma. The tumour has been wholly removed.

Mr. Curling, in some clinical remarks on this case, observed that before the operation there was every reason to conclude that the tumour was of a malignant character, and sprang from the hard palate, largely implicating the bone. It was very firmly attached, of rapid growth, and very vascular. It afterwards appeared, however, that the upper jaw was much less affected than was expected, the tumour having originated from the alveolar processes of the molar teeth on the right side, and having, in its extension across the palate, caused an expansion and elevation of the bone. The tumour proved to be a low form of malignant disease, and there was evidence of its having extended to the expanded bone; so that, although at an earlier period the growth might have been excised without the removal of the hard palate or of any large part of the jaw, at the time of the operation the preservation of the bony palate would not have proved satisfactory. Mr. Curling stated that he had been desirous of making his incision of the face in the median line of the upper lip, carrying it round the ala of the nose, as recommended by Mr. Fergusson; but he found, on practising the operation on the dead body, that it was impossible by this means to obtain sufficient space to make a horizontal division of the upper jaw beneath the malar bone, and accordingly he made the external incision in the course of the natural dimple in the cheek. Mr. Curling pur-

poses, when the parts have fully healed, to have the deficiency caused by the removal of the bone supplied by mechanical means.

Circumscribed Gangrene of the Lung, superincumbent on Drunkard's Pneumonia; horribly offensive Sputa, containing Sloughs and Debris of the Lung Tissue; Death; Interesting post-mortem appearances.

(Under the care of Dr. SEPTIMIUS GIBBON.)

GANGRENE of the lung is sometimes a termination of acute inflammation of the lung, although it is acknowledged to be so very seldom. Dr. Watson, in his Lectures, considers it somewhat more common (though under any shape rare) as an independent and primitive affection. It is almost, he says, as uncommon as the formation of an abscess. In the majority of cases, however, the antecedent or attendant inflammation is so slight as to have led to the suspicion that it is not the cause, but that it is even sometimes the effect, of the mortification, resembling that which results from the use of escharotics on the external tissues. We incline to the opinion, that there is always some degree of inflammation present. This is supported by pathological evidence, for when examinations have been made, this condition has been generally found to precede the evidences of gangrene; in fact, it is the cause, which, from the peculiarity of constitution, especially debility in drunkards, disposes this condition of the lung to run into gangrene. Of the two forms of gangrene which physicians are accustomed to meet, as a rule, the circumscribed is commonly met with, as compared with the diffused, and the example we record to-day is one of the former. The diagnosis, as is usual, was at once effected by the horrible odour of the breath, which pollutes a whole ward. Now, this condition or symptom is remarkable, as contrasted with the purulent infiltration of the third stage of pneumonia, which is attended by no foetor. The foetor is the especial diagnostic sign of gangrene of the lung.

The following case we present as a good example of the circumscribed form, occurring in a man who, although not an actual drunkard, was accustomed to drink spirits very freely; he thus became affected with “drunkard's pneumonia,” and secondarily gangrene of the lung, which ended fatally. The description of the post-mortem appearances contains many points of interest.

James G—, aged thirty-five, admitted April 25th, 1856. Is employed as a butler, and confesses to having drunk freely of wine and spirits; states that his health had always been good until five months ago, when he first noticed a cough and became short of breath. On the 19th of April he suddenly became much worse, had tightness at the chest, and coughed up a quantity of very offensive matter. He was not, however, confined to his bed until the day before his admission. He has never suffered pain anywhere, but has expectorated a large quantity of matter, which is so offensive as to be a nuisance to the people residing in the same house with him. Three months ago,

without any apparent illness, he had swelling of the legs. To have a saline mixture with tincture of henbane and milk diet.

April 27th.—The patient's skin is bathed in perspiration; he lies on his back; respirations, 40; pulse, 120, compressible; tongue moist, with thin, creamlike fur, and tremulous; cough very troublesome; expectoration consists of abundant purulobilious matter with an extremely offensive odour. He is able to lie on either side, but usually lies on his back. There is marked turgescence, and lividity of countenance; auscultation beneath right clavicle, shows bronchial breathing and bronchophony, and complete dulness on percussion; in the right infra-scapular region are the same physical signs. About two inches below the right axilla, over a space the size of the palm of one's hand, are detected cavernous breathing, pectoriloquy, gurgling, and metallic tinkling on coughing. The left lung, on account of the debility of the patient, was not very minutely examined, but it appeared free from abnormal sounds; the breathing was of a puerile character, and there was no dulness on percussion. He suddenly became worse on the following day, and the resident medical officer at once suspended the saline mixture, and applied a blister to the chest, but the dyspnoea was so great as to be incompatible with life, and he died without fit or coma at nine P. M.

Autopsy, thirty-eight hours after death.—Face swollen and congested, of a dark-red colour; lips of a deep purple hue. Rigidity well marked. Body well nourished, having an unusually large quantity of subcutaneous fat. Thorax: Pleural surfaces of both lungs were pretty firmly adherent to the parietes of the chest. On removal, the right lung appeared, as seen here and there through the layers of false membrane, to be of a deep purplish-red colour. It felt solid, but its anterior and lower edge were tough and flexible, and entirely devoid of air. Section through the long diameter of the lung showed that the parenchyma was of different hues; above and below it was apparently hepatized, of a dull-red colour towards the centre, where there were three cystic cavities, each as large as a full-sized marble; it was of a dark greenish colour. These larger cyst-like cavities were about one or two inches from the surface; there were smaller ones, the size of a pea, scattered through the middle and lower lobes. All contained similar looking contents—viz., flocculent, buff-coloured, purulent matter, giving one the idea, which the microscope confirmed, that it was the debris of lung tissue mixed with pus. The white cellular divisions of the lobules were apparent, giving the section a mottled appearance. There exuded a considerable quantity of venous blood mixed with air-bubbles. The left lung was as large and of as rounded a contour as the right; it was pitted, and did not crepitate freely on pressure, especially in the lower lobe, which was in the congestive stage of pneumonia, with a few small abscesses in it, similar to those found in the right lung. The upper lobe was highly cedematous, but healthy. The heart was uncontracted

and free from disease, with its cavities all distended with venous blood. On the outer surface of the organ, near to its base, were very many small vegetations of fibrine, firmly adherent. There was also one hæmorrhagic spot; it should have been stated that these spots were numerous on the pleural surface of the left lung. The other organs, except the brain, were examined, and found healthy. The inferior cava, iliac, and femoral veins, were free from disease.

We believe that suppurating "fibrinous deposits" have frequently been set down as circumscribed gangrene of the lung. Dr. Gibbon reminded his class, that as there had been anasarca of the legs, it was possible that the abscess of the lung might have grown from "capillary phlebitis." The hæmorrhagic spots and fibrinous vegetations, although on the *outside* of the heart, found after death, somewhat countenance this view of the case. But the absence of traces of phlebitis, or other fibrinous deposits, and the smallness of the abscesses, exclude this as one of the possible causes of the disease. It is an interesting and most instructive case, and appears to confirm Mr. Stokes's theory as to the liability of habitual drunkards to this disease. It is a well-ascertained fact, that the consumption of spirituous liquors diminishes the amount of carbonic acid expired from the lungs, but how it causes the death of the lung-tissue is a problem to be solved. Now that the State has appointed investigators of sanitary science, we hope to have some light thrown upon the connexion between particular diseases and occupations; also upon the influence of food and physical agents on life.

ST. BARTHOLOMEW'S HOSPITAL.

Large Abscess situated external to the Cavity of the Knee-joint in a Young Man, arising without any known Cause, simulating Suppuration within the Joint; Difference of Opinion amongst the Surgeons in the Diagnosis; Value of Negative Symptoms.

(Under the care of Mr. STANLEY.)

THIS day week (Aug. 2), a case of very great interest came under our notice in Darker's Ward—so interesting, in fact, that its true nature produced a difference of opinion amongst the surgical staff of the hospital. It possesses some features which, at the same time, should be well considered on the part of the student and junior practitioner, as likely to be of great value in practice.

The patient, Henry D—, was a young man, aged twenty two years, a shoemaker, admitted, July 31st, for a swelling of the left knee-joint, which had commenced two weeks before without any known cause; when a sudden darting sensation was felt in the joint, followed by shivering, and a starting upwards of the limb. The swelling slowly increased, until, at the time of admission, it had attained considerable magnitude. It did not extend quite so high up as in ordinary cases of synovitis with effusion, nor did it project the patella forwards in the slightest degree; it existed on

denser layer of areolar tissue, and loosely connected with the periosteum of the adjacent bones. At one point—the posterior and inferior edge of the zygomatic surface of the superior maxilla—it had a limited but distinct opening. The tumour therefore might be shelled out at all points but lies between the naso-palatine maxilla and the mucous membrane over the tumour exhibits an oval ulcer with margins, and a reddish, palatine part of the and thinned; the pus to it, and at one point up in texture, and a vascular, white colour, crumbly-looking, blotched further a kind helps To reach

... suggested to one's mind that there was something unusual about the case. The tumour when examined, was really very fluctuating, the skin was thin over it, and the fluid did not by any means seem to be deeply seated. It might therefore be an abscess. On examining a little further, we find the patient can elevate the entire limb without pain, and can flex and extend the knee, which he has been enabled to do from the beginning. On again referring to Mr. Erichsen's work, we find him saying:—"The chronic subacute synovitis and hydrarthrosis usually terminate favourably; but occasionally, more particularly in strumous constitutions, the disease runs on to suppurative destruction of the joint. This, however, is rare, but yet its occurrence in some instances should make the surgeon careful not to confound the fluctuation of the serous accumulation with that of the purulent collection. In the latter instance, there will always have been the precursory symptoms of inflammation."

If the present were a case of suppurative destruction of the joint, had it been preceded by any precursory symptoms of inflammation? The history pointed to nothing of the kind. If pus were present in a joint, even chronically affected, for argument's sake, could it be flexed without the most excruciating pain? No surgeon would confess it could, and moreover, if the suppuration was acute, the pain would be still more severe—facts well known to every surgeon. The conclusion therefore reasonably comes to, that the case was one of abscess around the joint, not involving its interior, was the natural and proper one, and proved to be correct in the end, by the plan of treatment adopted. Without further extending these remarks, we have thought it right to give the case as it is, as showing the value to the student, in certain instances, of not neglecting or altogether overlooking negative signs. We do not wish in the slightest degree to reflect upon the diagnosis of those distinguished men who gave their opinion upon the case. It was an unusual and a peculiar one, and we record it because of the many usefully suggestive and practical points it contains.

Now, this is a most instructive and valuable case, and of great interest, as we said, to the student, for many reasons. Here is an affection of the knee-joint, which possesses certain positive and negative symptoms. The absence of some of the ordinary positive symptoms met with in cases of effusion without the joint, seems to mislead; and when not one or two, but several, of the first surgeons of the day differ in opinion upon a case like this, we hope the poor student may sometimes be excused for an error of judgment at a time of great anxiety and trouble.

What are the symptoms of effused fluid within the knee-joint? On reference to Erichsen's "Science and Art of Surgery," p. 800, he states:—"The presence of an abnormal quantity of fluid in the joint is always readily perceived by its fluctuation and undulation, by the deformity that it produces, and by the peculiar shape that it communicates to the part. Thus, in the knee, which is the most common seat of this affection, the patella will be felt to float, as it were, on the subjacent liquid; and the capsule of the joint projects distinctly in three situations—viz. on either side of the ligamentum patellæ, and above that bone." Were all these symptoms present here? All except the floating of the patella, which was firm and in its natural position; the effused fluid was not quite so uniformly prominent as in ordinary synovitis. The condition of the patella was therefore a very important negative symptom, and indicated that the joint was not full

UNIVERSITY COLLEGE HOSPITAL.

An undescribed Form of Strumous Disease of the Testicle, arising from a Blow; Removal of the Organ; Recovery.

(Under the care of Mr. ERICHSEN.)

In most of the standard surgical works, one form only of strumous testicle is recognised and described. It commences with a deposit of tubercle into some part of the testis or epididymis, either into or between the tubuli seminiferi. On reference to Mr. Curling's work on the Testis, he observes, in relation to tubercle:—"It is sometimes developed in a single mass; at other times, several distinct depositions are formed in different parts of the organ; in both cases at the expense of its glandular structure, which becomes atro-

as the disease advances. The disease also affected the epididymus, which is, indeed, more so than the body of the testis." Mr. Curling does not speak of the existence of tubercle external to the testicle, commencing upon the gland itself within the cavity of the tunica vaginalis, especially upon its reflected layer. An example of this hitherto undescribed form of the disease, however, we saw Mr. Erichsen remove from a patient about three months back, and which he specially dwelt upon before his pupils. The tumour presented a quantity of cheesy and fibrinous matter intermingled, developed within the serous sac covering the testicle; it was unmistakably scrofulous. In the centre of the gland was a small cavity containing serum, but lined with strumous material, corresponding in character with that of the tunica vaginalis. The proper substance of the testicle appeared to be more or less healthy.

In his remarks upon this case, Mr. Erichsen mentioned that it differed from the ordinary form of scrofulous disease of the testicle—in fact, as he said, there are two forms of it; in the first, we have the well known affection as commonly met with, the particulars of which he gave, and which are so well known that it is unnecessary to recapitulate them; in the second form, of which the annexed case is an example, the strumous matter becomes developed upon the testicle, which may become enlarged from a blow, the deposition occurring around the tubuli testis; the visceral reflection of the tunica vaginalis has given way most probably, and the tuberculous matter becomes mixed up with the fluid in the cavity of the tunica vaginalis: thus differing from the ordinary form of scrofulous testicle in not having an external fungus, but having the tuberculous matter poured out within the sac of the serous membrane, and not outside of it.

Robert B—, aged forty-two, a native of Essex, but has lived in London twenty years. Is a delicate-looking man, of fair complexion and strumous diathesis; there is, however, no hereditary taint, his relations being remarkably healthy. When eighteen years old he had a small swelling in the groin, which he supposed to be a rupture; after some time it disappeared; therefore this might have been an affected gland. The patient has never had any venereal disease. He states that eight months ago he violently struck his right testicle, and after it he felt very sick, but soon recovered and continued his work. On the days immediately following the accident he felt no pain in the parts, nor were they swollen. Five weeks after this the right testicle gradually increased in size, but was of the same consistency as its fellow. Three months after this he saw the house-surgeon of the hospital. It was then the size of two fists. Ordered mercury and bark internally, the testicle being compressed by strapping. This treatment partially succeeded, but it again increased in size and continued to do so up to the time of his admission on Feb. 28th, 1856.

Feb. 29th.—The right testicle is much enlarged,

being about the size of a goose's egg, smooth, heavy, oval in shape, and hard; it is entirely devoid of pain, and not tender on pressure. There is a dragging sensation in the course of the cord, which on the right side is rather enlarged. On introducing a grooved needle, a little fluid was let out, consisting of blood and serum.

March 5th.—The patient was given chloroform, when Mr. Erichsen made an incision about three inches long on the anterior part of the right side of the scrotum over the testicle. On coming to the tunica vaginalis, it was found to be hard and cartilaginous; some fluid that resembled the contents of the grooved needle was let out, together with masses of fungous-looking and cheesy matter, of a lightish-brown or yellow colour, mixed with fibrinous substance. It being evident that the case was one of strumous sarcocele, castration was at once performed.

On a section being made of the testis, the interior of the tunica vaginalis presented a cauliflower surface of a brownish-yellow colour. In one part were the remains of extravasated blood, and a cavity with an irregular strumous surface, containing serum, existed in the centre of the testicle. Under the microscope, the tuberculous mass presented a considerable amount of granular matter and debris, mixed with cells of various forms; the cell contents were not fatty, and acetic acid failed in bringing out any nuclei.

After the operation the patient rapidly recovered. He is now in good health, and in the full enjoyment of his sexual functions.

Necrosis of the Patella, consequent upon a Diseased Bursa of Three Years' Standing; Scraping away the Affected Portions of Bone; Extension of the Disease to the Knee-Joint, with Suppuration; Amputation of the Thigh; Recovery.

(Under the care of Mr. ERICHSEN.)

NECROSIS of the patella is an affection so very seldom witnessed that it is not even mentioned by surgical writers. To be sure we not unfrequently find the articulating surface of the patella diseased when the knee-joint has become disorganized from various causes, but this is a very different thing from true necrosis. On turning to Mr. Stanley's work on "Diseases of the Bones," we were disappointed to find the patella had escaped his notice. He says, on the subject of necrosis affecting various bones:—

"With respect to the liability of different bones to necrosis, it may be observed, that necrosis occurs more frequently in the shaft of the tibia than elsewhere, apparently because its front part, from the thinness of its coverings, is especially exposed to such noxious influences as are likely to occasion the death of the bone. Next to the tibia is the femur in the frequency of its necrosis, and why it should be so is not evident. After the femur, the other principal bones may be thus arranged, in respect to their liability: the humerus, flat cranial bones, lower jaw, last phalanx of a finger, clavicle, ulna, radius, fibula, scapula, upper jaw, pelvic bones, sternum, ribs."—p. 70.

It is quite clear, then, from the foregoing, that necrosis of the patella must not only be rare, but that when it does occur it must be from some unusual cause. In a former "Mirror," we recorded a case of necrosis of this bone, with removal of the affected portion, which terminated in recovery, in a man aged forty, under the care of Mr. Coulson. The disease arose from an injury produced by lifting a heavy weight. In the present instance it had its origin in some affection of the bursa over the bone three years before, induced most probably by the nature of the patient's occupation. The affection could not have been an ordinary housemaid's knee, as its course seemed too rapid for that; but it ended in suppuration, with a spontaneous evacuation, in the course of a week. Suppuration continued uninterruptedly the whole of the three years. The diseased portion of the bone was scraped away on the 30th of April; the disease, however, extended at its lower border, perforated the bone here, and involved the knee-joint, which very rapidly became filled with pus. Mr. Erichsen contemplated the removal of the patella, and saving the joint, which he would have done had the patient been younger and in better health; but as she was much enfeebled and worn out by suffering, his only resource was amputation of the thigh, which was accordingly done a fortnight afterwards, and she made a good, although tedious, recovery.

It is quite possible, had this poor woman applied for advice at a much earlier period than she did, that the mere removal of the affected portion of the sesamoid bone would have proved sufficient to effect a cure. At any rate we are glad to have the opportunity of recording this very interesting case, from the notes taken by Mr. D. B. Reid, late house-surgeon to the hospital, which, with the one in a previous "Mirror," will be the means of drawing the attention of surgeons to an affection hitherto scarcely noticed.

Ann H.—, aged forty-seven, admitted on the 26th April, 1856, suffering from disease of the patella. Is a depressed cachectic woman, with a jaundiced tint of skin; is married; lived all her life in London; always had enough to eat and drink. Occupation, a charwoman; hard worked; obliged to kneel much, especially on left, the diseased, knee. Never had rheumatism; health generally very good.

Three years ago the left knee felt stiff and painful, causing patient to limp a little. A swelling formed over the patella, and the skin covering it was tense and red; the enlargement was not general, but confined to the front of the patella. This was treated by poultices and leeches, but though they relieved the pain, the swelling burst about a week after, and discharged a quantity of pus tinged with blood. The pain attending the swelling was of a shooting character. After the opening formed spontaneously, pus continued to be discharged up to the time of admission; and ever since the attack, she has been unable to kneel on the affected knee. Occasionally the opening would close over, and then the swelling and pain would re-

turn until free exit was given to the discharge. The knee remained in much the same condition till the patient was advised to come to the hospital.

On admission, the movements of the joint were found free, and the general contour natural. The skin over the patella was of a dusky purple colour, and was evidently thinned and considerably undermined. Opposite the inferior border of the patella there is an opening in the integuments, through which dark unhealthy matter was discharged.

Mr. Erichsen introduced a probe through the opening, and immediately found that the patella was bare and rough. He then slit up the cavity, and found that the anterior surface of the patella was almost completely exposed and carious, and that inferiorly it was nearly eroded quite through into the knee-joint.

April 30th.—Mr. Erichsen enlarged the vertical incision over the patella and scraped away the diseased osseous surface, dressing the cavity with water-dressing, and confining the knee on a back splint.

May 3rd.—No febrile disturbance; sleeps well; pulse 96. To have extra diet: beer, a pint; milk, a pint.

9th.—Knee-joint swollen up, and pressure on it causes escape of purulent synovia through the patella, which has become perforated by an extension of the osseous disease. Pulse 120, weak and irregular. Throbbing and starting in joint.

14th.—Joint destroyed. The patient losing ground.

After giving chloroform, Mr. Erichsen examined the joint, and found it too far gone and the patient too depressed for any conservative measures. He accordingly amputated the thigh by lateral flaps, just above the knee. After the amputation the patella was found quite carious on its anterior surface, and inferiorly the disease had perforated the joint. The joint itself was acutely inflamed, and filled with unhealthy, dark, purulent matter. The ligaments were softened, and the synovial membrane acutely injected. The cartilaginous surface of the patella was but little eroded, though perforated in one place, where the disease had most deeply affected the patella.

The day after the operation, the patient was much improved; slept well; pulse regular and stronger. Subsequently she went on well; and on the 4th of June, the wound was almost completely healed, and she sat up for some hours. By the end of June the stump was perfectly healed, and shortly afterwards she left the hospital very much improved in general health.

Enchondromatous Tumours of the Metacarpal and Phalangeal Bones of the Index and Middle Fingers of a boy; Successful Removal.

(Under the care of Mr. ERICHSEN.)

THE enchondromatous tumour takes its name, as is well known, from being composed of round

masses of cartilage, imbedded in fibrous membrane, varying in consistence and in degree of firmness, sometimes being almost as soft as the vitreous humour—so soft, in fact, as to be mistaken and punctured for ganglia, or as firm as ordinary cartilage, which is the form most commonly met with. Phosphate of lime and chondrine are its principal chemical constituents. This form of tumour is thus described in the edition, just out, of "Druitt's Surgeons' Vade-Mecum":—

"In external character, cartilaginous tumours are firm and smooth, usually somewhat nodulated; sometimes hard, sometimes so soft as to be mistaken for cysts. Their usual situation is on or within the bones, particularly those of the hands, and they may be developed, either within the bones, which they then cause to expand into a thin shell, or else from their surface beneath the periosteum; in which case they usually have, like other tumours in the same situation, a skeleton of light, papery plates, and spicula of bone shooting through, out their substance; or they may become ossified from internal independent centres of ossification."—p. 95.

Almost as a general rule, these tumours occur in early life; we have seen many examples in boys and girls, and, strange enough, their most common seat appears to be the hands, seldom the feet. In the majority of cases they are found connected with the bones and joints, but now and then they are met with in the soft parts, as in an instance which occurred at the Hospital for Sick Children, when the seat of the growth was in the subcutaneous cellular tissue of the arm, unconnected with bone or any glandular structure, the patient being a cook, aged thirty. It was removed by Mr. Athol Johnson. The testicle, the mammary and parotid glands, and the lungs, are occasionally the seat of enchondroma, and it may be associated with other growths of a fibrous or fibro-plastic character, or even with cancer.

Some months ago we saw Mr. Moore at the Middlesex Hospital, remove a number of enchondromatous tumours situated upon the ends of the phalanges and metacarpal bones of the hands of a little boy, aged nine years; one the size of a marble was growing from the outer aspect of the third phalanx of the forefinger. The bones here were not implicated, but they were in the following case:

On the 16th of July a little boy, aged ten years, came under Mr. Erichsen's care with several tumours of the same character on the left hand growing principally from the metacarpal and second and third phalangeal bones of the index finger, and also from the ring finger. The appearance of the hand was not unlike the drawing in "Druitt's Surgeons' Vade-Mecum," p. 98, the largest tumour being an inch and a half in diameter. They had grown from childhood, but were not congenital. Mr. Erichsen the same day amputated the two fingers, under chloroform, above the metacarpophalangeal articulation, and a large square flap was obtained, with the loss of very little actual skin, and the parts were nicely brought together by stitches. The union was by suppuration, but

a good useful hand is being obtained, with the perfect use of the three remaining fingers. The bones in two or three places here were the seat of the disease, and had become expanded around and incorporated with them, thus rendering the fingers themselves utterly useless.

Tubercular Enlargement of the Axillary Glands, with complete Cretaceous Transformation in their Interior; successful Extirpation.

(Under the care of Mr. ERICHSEN.)

ONE of the characteristics of tubercle is, that it may undergo the cretaceous, sandy, or calcareous degeneration. This increase of consistence is said to be most liable to arise in those cases wherein a great deposition of curdy, friable substance, is contained in these bodies, and in which they have established a sort of tolerance in the surrounding tissues. This transformation is observed in various situations throughout the body, but is by far most frequent in the bronchial lymphatic glands and apices of the lungs. We, however, present the brief report of a case in which it had occurred in the axillary glands, which became affected with tubercular enlargement and subsequent cretaceous degeneration. This process is by no means rare, and is well known to pathologists; some very good drawings of these changes are given in Dr. Glover's work on Scrofula. It would appear that this transformation is greatly favoured by advanced age, but sometimes it occurs in very young subjects and even in children. From the following quotation from a standard work on Pathology, it would seem that in cretaceous or common tubercle the proportions of the ingredients are merely reversed: "The animal matter of which crude tubercles naturally consist appears to be extracted, and its place supplied by the earthy salts, especially the phosphate and carbonate of lime, which have been shown by Thenard, Lombard, and L'Heritier, to form from 93 to 98 per cent. of the entire mass."

The patient was a young woman, aged about twenty-two years, admitted with a large mass of enlarged glands in the right axilla, which felt like plums. They had existed for a considerable time, came without any apparent cause, had resisted treatment, and were now a source of great inconvenience. They formed a considerable mass altogether, and extended under the great pectoral muscle. It was not a case of disease secondary to any affection of the breast, but one of primary disease occurring in the axilla. The age of the patient, her general appearance, and apparent good health, showed they were not of a malignant character. Mr. Erichsen, therefore, made up his mind to remove them; and accordingly, on the 14th of May, chloroform was administered, and an incision with a scalpel made across them permitted of easy enucleation with some slight dissection. The mass which was thus removed consisted of eight or nine glands, and filled the hand; they were enlarged, not supplied with any large bloodvessels, and in their interior were found to be a mixture of tubercular and cretaceous matter, the gland tissue being

spread out around these substances. The parts were brought together by stitches, no vessels required tying, and cold-water dressing was applied. Union by the first intention very rapidly ensued, and a few days after the operation she left the hospital quite well.

Stone in the Bladder, for possibly Fourteen Years, in an apparently healthy Man; Purulent and Phosphatic Urine; Lithotomy; Unusually deep Perinaeum; Extraction of a Mulberry Calculus, partly coated with Lithic Acid; Fatal result from Peritonitis and Disorganization of the Left Kidney.

(Under the care of Mr. ERICHSEN.)

THE history of the case appears to show that the stone had its origin most probably at the time when, fourteen years before, the patient passed several small renal calculi from the bladder, one of these forming the nucleus of the mulberry calculus which was removed. He had not been a great sufferer, his general health was extremely good, and no unfavourable symptoms were at all manifested, so far as could be discovered. The case, therefore, seemed a very suitable one for lithotomy, which was performed in the usual manner, but with the inconvenience of an unusually deep perinaeum—in fact, the deepest Mr. Erichsen has ever witnessed; so much so was this the case, that the finger could barely reach the bladder, and on passing the ordinary lithotomy-knife along the groove of the staff, it did not sufficiently cut through the prostate; dilatation of the wound was therefore effected by the use of the blunt-gorget, instead of the finger. The prostate gland was much enlarged, and somewhat friable. From the nature of the stone, it was retained with difficulty in the grasp of the forceps, but was safely extracted. The deposition of uric acid in the interstices of the rough nodules gave the stone a peculiar appearance; it furnished a good representation of a mass of iron pyrites. The patient survived the operation four days, death being produced by low peritonitis, associated with extensive disorganization of the kidneys, particularly of the left, which contained several calculi. The peritonitis was not secondary to any fascial inflammation, as none existed. Had the kidneys not been affected, there is every reason to believe the case would have ended favourably.

We have to thank Mr. Newcome, the house-surgeon to the hospital, for the notes of the case, which were taken by Mr. B. Hill, the dresser of the patient.

William L—, aged sixty-two, an innkeeper, residing at Hull, stout, florid, and healthy-looking; has been the father of twenty children, ten of whom are living. Used to ride and hunt when he was in service, but it never gave him pain. When young, he was accustomed to large quantities of sour beer, vinegar, pickles, and acids, but he has always been temperate in eating. Fourteen years ago he had severe spasmodic pain in the loins and along the uterus to the bladder, for which he was leeches, blistered, &c.; during this he passed

several small stones, which gave him great relief. About two months back he was unable to micturate; he sent for a surgeon, who passed a catheter and drew off the urine, when a large calculus was felt. There has been since then a great deal of pain about the region of the bladder, though the urine comes away freely. When he lies on his back there is no pain. The urine, since passing the catheter at Hull, has been thick and turbid. His health at present (June 24th) is excellent, and his mind cheerful. His urine is highly acid, specific gravity 1020, dark straw-colour, clear when at rest, with a purulent deposit with a few phosphatic crystals, and highly albuminous.

June 25th.—Mr. Erichsen to-day passed a sound into the bladder, and succeeded in feeling the stone, which appeared to be rough, hard, of considerable size, and loose in the bladder. The patient's health and spirits continue excellent.

30th.—To-day, Mr. Erichsen passed the lithotrite, in order to examine the stone, and found it to measure an inch and three-eighths, and was of a roundish shape; it slipped from the mouth of the instrument when the screw was applied. The patient suffered but little pain during this operation, and is now at ease.

July 2nd.—Mr. Erichsen removed the stone by the lateral operation, under the influence of chloroform. The stone—a mulberry calculus—was two inches long by one inch and three-eighths wide, very hard, and covered by nodules, which rendered its extraction extremely difficult; the interstices of the nodules were partly filled with lithic acid. It weighed nearly an ounce and three-quarters. The opening into the bladder through the prostate being much lacerated, some blood was lost, but not a great quantity.—Six P.M.: Going on very well, with the exception of a little sickness; pulse 100; skin hot, but moist; tongue clean; no tenderness in abdomen and no pain; urine passes freely through a gum-elastic tube, with a little blood; no hæmorrhage from wound.—Nine P.M.: Sickness and vomiting frequent; ordered effervescing draughts with some hydrocyanic acid. Pulse 100, regular and full, but not bounding.—Eleven P.M.: Sickness arrested; patient feels sleepy, and dozes continually. From five to six ounces of urine have passed through the tube.

8rd.—Three A.M.: Patient easy: pulse 96, regular, strong, and full; skin moist; tongue soft and clean. The urine comes freely through the tube; no hæmorrhage.—Six A.M.: Pulse 80, less full, slightly irregular; skin moist and cooler; tongue clean; no hæmorrhage; urine passes freely through the tube, of dark colour and ammoniacal odour; no blush; no pain anywhere.—Seven P.M.: Slight attack of hiccough, which produced some nausea; patient otherwise easy; no pain. Wound healthy. Urine passes freely through the tube. Has slept a good deal during the day. Pulse 96, soft, and slightly irregular.

4th.—Nine A.M.: Pulse 116, full, and hard. Has had a slight attack of hiccough during the night, but it did not last long: it has just returned with some violence, and has been followed by an

attack of vomiting.—Two P.M.: Hiccough still violent and frequent; some slight pain on pressure over the abdomen. Mr. Erichsen removed the tube, as it caused some irritation. Ordered two grains of calomel and half a grain of opium at once, and four hours afterwards a draught of half a drachm of powdered rhubarb, one drachm of Rochelle salts, half a drachm of aromatic spirits of ammonia, in an ounce and a half of cinnamon water; and linseed poultices to abdomen.—Four P.M.: Hiccough recommenced, for which he was ordered forty minims of chloric ether, which relieved it slightly. Pulse 120, irregular, and small; skin dry.—Six P.M.: Patient better; has slept some time. The hiccough has ceased.—Midnight: Still sleeps. Has taken a little brandy and arrowroot: an effervescing mixture to be taken.

5th.—Nine A.M.: Pulse 112, small, soft, and irregular; skin cooler and moist. Has taken some more brandy and arrowroot; has slept much through the night; tenderness less, and no pain when not touched; slight feeling of swelling and oppression in the abdomen. The bowels have not been moved by the medicine, and castor oil has been given; he takes a little arrowroot and brandy occasionally, but has no appetite.—Six P.M.: Hiccough has recurred for a few minutes, but a dose of chloric ether relieved it; pulse 130; small. Midnight: Pulse 132, small; no urine passes through either urethra or wound; great tenderness and tenderness over the whole of the abdominal surface, more especially above the pubes. Hot flannels moistened with tincture of opium applied to the abdomen. Patient's strength sinking; suffers much from shortness of breath.

6th.—Eleven A.M.: The patient has just died in great exhaustion, but not in pain.

Autopsy.—The body was that of a stout, healthy man. Abdomen somewhat tympanitic. On opening the peritoneal cavity, a small quantity of turbid serum, of dirty puriform appearance, escaped. The intestines were slightly injected in patches, but not adherent to one another. The capsule of the left kidney was easily detached, but a part of its substance was torn away with it; the surface was rather lobulated, and its structure completely disorganized; the medullary portion was greatly atrophied, and three calculous masses were found within it, one of the size of a hazel-nut. The right kidney was pale and flabby, loaded with fat, and in a state of fatty degeneration; one small calculus, the size of an ordinary shot, was found imbedded in it. The liver was large, soft in structure, and moderately congested. The interior of the bladder was smooth, tolerably free from loculi, pale in its upper part, slightly congested below, and the mucous membrane abraded in parts. The prostate gland was considerably enlarged; the line of incision was sloughy and rather ragged. There were no signs of purulent infiltration or inflammation in the pelvic passage, nor any signs of inflammation or infiltration of urine in the pelvic fascia.

ROYAL FREE HOSPITAL.

Fatty Tumour over the Coracoid Process of the Scapula; Cancer of the Lower Lip; and in-growing of the Toe-Nail; removal without Pain, under the influence of Congelation.

(Under the care of Mr. WEEDEN COOKE.)

WE have seen, on several occasions, some of the minor surgical operations performed when the parts have been in a state of anæsthesia from Dr. James Arnott's freezing mixture. We can call to mind several at University College Hospital, under Mr. Erichsen's care—one especially of removal of the toe-nail from the foot of a young man, in April last, without the slightest pain. Mr. Thomas Wakley has also tried this method in several cases at the Royal Free Hospital, and in every instance the success was quite evident, the patient, when blindfolded, being ignorant of the use of the knife. He has already elsewhere confirmed the evidence of Dr. Arnott on this important subject (*THE LANCET*, vol. i. 1855). More recently, we have seen Mr. Weedon Cooke remove several small growths, in a wholly insensible state, with really very gratifying results. We select three examples from amongst a number, to show the good effects of the freezing mixture. One of these was a fatty tumour, situated in a part of the body where sensation was very acute; and notwithstanding the tumour extended a little distance beneath the skin, no pain was felt, the mere act of freezing the skin alone being sufficient, without extending its effects deeper. This was the first time we had seen a tumour removed in this way, although it has been done before by Mr. Banks, of Forest-gate, who excised an osseous tumour from the leg of an old lady, aged eighty years (*THE LANCET*, vol. ii. 1855). We have already, in a previous "Mirror" (vol. i. 1852), given illustrations of its value in removing the excruciating pain in ulcerated cancer of the breast, in the Middlesex Hospital, under Mr. Shaw's care, and of cancer of the uterus, in St. Mary's, under Dr. Tyler Smith. It is most unquestionably a valuable agent where a thin stratum only is implicated, and may be used with advantage when it is unnecessary to give chloroform; but there is not the slightest doubt it will never supersede chloroform in operations upon deeper seated parts. As a palliative in relieving the severe pain of cancer and other diseases, it cannot be too highly recommended. It might be used with advantage in painful cases of neuralgia.

The freezing mixture of Dr. James Arnott consists of equal quantities of ice and common salt, mixed together, (the former well pounded,) and then placed in a gauze bag, the margins of which are attached to a gutta percha ring. By gently touching the part to be rendered insensible with the bottom of the bag continuously for from one to three minutes, the surface becomes suddenly frozen, insensibility follows, and the pain of course disappears. If ice is used without the salt, it obviates the tingling which sometimes ensues on the return of sensibility.

Fatty Tumour over the Coracoid Process of the

Scapula.—J. B—, aged twenty-one, servant, admitted March 17th, 1856. Has a fatty tumour, the size of an orange, situated over the coracoid process of the left scapula. Having applied ice and salt in equal proportions, the integument became white in a few minutes, when Mr. Cooke made an incision, unfelt by the patient, over the tumour, which was squeezed out and separated by a few nicks with the scalpel. One suture was put in to draw the parts together, the introduction of which was also unfelt by the patient. Some hæmorrhage occurred the day after, but being soon checked by perchloride of iron, the healing proceeded by granulation, and she did well.

When the tumour was removed, although the edges of the wound appeared to have resumed their sensibility, no pain whatever was manifested in putting in the ligature.

Cancer of the Lower Lip.—This was a cancerous growth of two months' duration upon the lower lip of a man aged forty-five years. He was in the habit of biting his lower lip, and smoking after it. A sore began to form about two months before; it grew hard, and discharged an ichor from its surface. Mr. Cooke applied a freezing mixture on the 21st of April, and when the part was completely frozen, he removed the diseased mass by a V incision. The patient did not feel the operation, and very little blood was lost, not a ligature being required for a single vessel. Two pins were then put in, and the wound brought together. A microscopic examination showed the ulcerous mass to be composed of epithelial scales and some fibro-plastic and fusiform cells.

In-growing of the Toe-nail.—The patient was a young man, with ulceration accompanying in-growing of the toe-nail, which was extremely sore and painful. It was removed by means of scissors and forceps, when the toe was frozen by the frigorific mixture, on April 21st. A little pain, however, was felt at the latter end of the operation, in a spot where perfect congelation had not taken place. This case did well.

ST. MARYLEBONE INFIRMARY.

Severe Chronic Disease of the Knee-Joint; principally implicating the Head of the Tibia, a portion of which was removed; Subsequent Dislocation of the Bone backwards; Amputation; Excellent Effects of dressing the Stump with strips of Wet Linen instead of Plaster.

(Under the care of Mr. HENRY THOMPSON.)

Nor unfrequently we meet with cases of old-standing disease of the knee-joint, which appear to have resisted treatment of every kind for years, and at last serious mischief is sure to supervene, requiring measures of a somewhat more important character than were before adopted to save life. The following case dates its history as far back as ten years, and especially illustrates the truth of this. The disease at the commencement was one most probably of ordinary synovitis, which, from neglect at the beginning, has gone on from one

stage to another till the whole articulation became seriously involved; but the head of the tibia seems to have been the part principally implicated, a portion of which was removed in a necrosed state. This did not prevent active suppuration, total destruction of the joint, and dislocation. Amputation, therefore, was the only course left to the surgeon, and the leg was removed on the 5th of July. The poor woman has gone on well; but we wish to draw the attention of surgeons to an important and novel plan of dressing the stump we have seen practised by Mr. Thompson, which we can strongly recommend for its convenience, nicety, and extreme cleanliness, together with the facility it affords at all times of examining the stump. One very decided advantage also this method of dressing has over adhesive plaster is, that the patient suffers no pain nor irritation when the dressings are being changed, nor is there a tendency to separation of the flaps on the removal of the wet strips of linen (not lint). They adhere as closely as the plaster, and are much more comfortable; besides they cause no dirt, and can be changed in one quarter of the time. They are likewise cooler, and may be kept moist, so that the whole stump may be maintained in a supple condition, a very great desideratum. Not a particle of plaster was at any time applied, and, from what we constantly see at most of our large hospitals, we think Mr. Thompson's plan a decided advantage over the other, and would strongly recommend a trial of it. It is not unusual to see masses of wet lint applied over stumps after amputation; but this is quite a different procedure from that adopted by Mr. Thompson.

A case very similar to the present we saw some weeks back under Mr. Coulson's care at St. Mary's, that of a young woman with disease of the upper part of the tibia since the year 1848. Portions of diseased bone were removed by Mr. Keate; two or three years after again by Mr. Partridge; then a year or so ago Mr. Coulson removed some with a gouge, the joint not being involved. On the 10th of May the joint became suddenly affected, followed by severe constitutional symptoms; an abscess formed above it with sinuses, and a probe could be passed through the head of the tibia into the joint. No hope, therefore, of saving it remained, and, as excision could not in such a case be performed, Mr. Coulson amputated the leg on the 21st of May. The joint was found extensively diseased, with pus in its interior, and the sac of a large abscess existing at its outer side. The amputation, therefore, was antero-posterior, and very little blood was lost. This case, as we expected, did very well, and, if taken with Mr. Thompson's, forms a striking contrast with the one published in the "Mirror" in our last number, under Mr. Coulson's care.

A woman, married, aged thirty-two, was admitted June 28th, 1856, with severe disease of the knee-joint, the course of which has been remarkably chronic, tedious, and exhausting. It may be briefly reported as follows:—

Ten years ago, while carrying her infant, her

foot slipped, occasioning pain in the left knee, but she thought nothing of it at the time. Next day it was swollen and painful; She did not lay up, but continued her usual occupations. After some time she received treatment as an in-patient in two or three of the metropolitan hospitals, with temporary relief. Since, however, disease of the joint has steadily but slowly manifested itself, the bones entering into the articulation becoming evidently diseased, especially the head of the tibia. Recently a portion of the latter has been removed at one of the hospitals alluded to, but without success. The suppuration became profuse; the tibia was partially displaced behind the condyles of the femur. The joint is now obviously disorganized, and large quantities of pus are discharged from two large openings at the inner side of the knee and popliteal space. In this condition she came into the infirmary. Her general state is one of great debility, and emaciation is considerable. Hectic symptoms have existed for some time.

July 5th.—The patient's health and the local lesion were such as to forbid all hopes for success from any endeavour to save the limb. Accordingly Mr. Thompson decided to remove it at once. This he did by two flaps in the usual manner, at the middle of the thigh. Several ligatures were necessary. The flaps were at once brought together by means of sutures. No plasters were applied; but two large compresses of lint, one above the other, below the stump, so as to ensure moderate pressure, and accurate apposition of the cut surfaces.

31st.—The patient's health and general appearance are remarkably improved, having continued to do so ever since the operation. The flaps have for the greater part united, the ligatures have all come away, and the stump is sound and well-proportioned. There has not been an untoward symptom of any kind. The parts have been dressed throughout with strips of wet linen instead of plaster, which has never once been used. These are about two inches wide, and fifteen or eighteen inches long.

ST. MARY'S HOSPITAL.

Traumatic Inflammation of the Knee-joint, the result of a Wound from a Needle which became lodged; Ineffectual attempt to remove it; Suppuration outside the Articulation; Recovery, with perfect use of the Limb.

(Under the care of Mr. COULSON.)

SIMPLE acute inflammation of the joints does not frequently occur; and other acute forms of arthritis will generally be traced to rheumatism or some contamination of the blood. Wounds of the joints, however, and especially those of a penetrating nature, often give rise to very severe inflammation of the synovial membrane, by no means proportionate to the amount of injury which has been inflicted on the part. In this respect the synovial membranes follow the same physiological law as the serous. A small pene-

trating wound of the closed sac often excites much more violent inflammation than a large incised wound by which the cavity is extensively laid open. Perhaps, as a celebrated physiologist and pathologist remarked, this difference may arise from the circumstance that, in the first case, the membrane still preserves its vital instincts as a closed cavity and resents the puncture; whereas, when freely laid open, it loses at once its character of a shut sac, and is not therefore so sensitive of the injury, because its character is radically changed. However this may be, the following case illustrates the great degree of injury which may follow slight penetrating wounds of a joint.

Ellen B—, nineteen years of age, was admitted on the 14th of March, 1856. On the day previous to her admission, she received an injury of the right knee-joint. While kneeling to wash the floor, a needle entered the part, and broke off at about an inch from the point, which remained imbedded in the tissues in the median line, and about one inch below the patella. After the receipt of the accident, a bread-and-water poultice was applied to the knee, and the patient went to bed. She passed a very uneasy night, from constant pricking pain in the joint. On getting up next day, the articulation was so stiff that she was unable to flex the limb; and the pain became so severe during the day, that she was compelled to apply for relief at the hospital.

March 15th.—Mr. Coulson examined the joint, and made an incision about an inch in length just over the spot at which the needle had entered; but he was unable to discover the foreign body. A large linseed-meal poultice was applied over the joint; the patient passed a better night, and did not suffer so much from pain in the articulation. On the following morning the joint was found somewhat swollen, and the integuments were red and hot; pressure on the joint excited pain, and the patient also complained of a throbbing pain in the joint.

22nd.—The knee is now considerably swollen, and very painful to the touch; the wound discharges freely. The limb has been bandaged and placed in a splint, the tibia being kept as close as possible to the condyles of the femur, and all motion in the limb prevented.

29th.—For the last few days the discharge of matter has been considerable, half a pint of pus at least coming away daily. The patient complained of a pricking pain on the outside of the joint, near the condyle of the femur. A free incision was made at this point, and a small quantity of matter was evacuated. The patient expressed herself as feeling better to-day than for the last few days.

April 1st.—The discharge has diminished since the last incision was made, and the matter is less offensive in quality. The patient feels better and stronger; but the slightest motion excites great pain in the joint. Since the 24th of March, she has been taking five minims of Battley's solution, combined with bark, every six hours; at bed-time, one-third of a grain of acetate of morphia.

12th.—The pain in the joint has now entirely disappeared; the patient sleeps well, and is free from perspirations. The wounds are dressed with calamine cerate.

16th.—Going on favourably. The limb is still bandaged and supported with a pad at the sole of the foot.

18th.—The catamenia have appeared; and the patient feels low; she is thirsty, and complains of sharp pains, recurring every five minutes or so, in the iliac region. The bark mixture was now omitted, and she was ordered to have a fever mixture instead, with some grey powder, and Dover's powder at bed-time.

19th.—Mr. Coulson examined the limb to-day, and had it put up again in the same manner as before. The patient slept well last night; but her appetite is indifferent. To have fish diet.

23rd.—The patient complains of great pain in the back from long continuance in the same posture; she was, therefore, placed on a water pillow. The appetite is still bad, and half a pint of porter daily was ordered. At four o'clock P.M., the senior house-surgeon, Mr. Gascoyne, removed the apparatus, and made a careful examination of the joint and back. He was unable to discover any material cause of the severe pain of which the patient complained; but she acknowledged that her bowels had not been properly evacuated for a week past. An enema was administered at once, and gave much relief. The limb was put up again in one of M'Intyre's splints, with a pad in the popliteal space, in order to flex the joint slightly.

24th.—The patient is now very comfortable, and free from pain. She takes her food with relish.

29th.—Progressing favourably.

May 24th.—There is free motion of the joint, without pain or swelling, and the patient will soon leave the hospital cured.

CHARING-CROSS HOSPITAL.

Eversion of the Lower Eyelid, with a Fistulous Opening at the side of the Nose, produced by Sloughing of the Integuments in a Young Girl, after removal of the upper jaw four years ago; successful Plastic Operation.

(Under the care of Mr. HANCOCK.)

THIS patient, a young girl, aged nine or ten years, was under Mr. Hancock's care, in this hospital, four years ago, with a tumour of the left upper maxilla, with the following history:—In December, 1851, she fell and bruised her face; soon after, a tumour was observed on the left side, immediately below the orbit. Unattended with pain, it gradually increased in size, until, at the time of admission, it was about the size of a walnut. Upon careful examination, Mr. Hancock found the hard palate and gums perfectly healthy; the tumour was smooth and solid. Upon carrying his finger behind the soft palate, he could detect nothing wrong in that situation; but, as he otherwise could

not detect the extent of the mischief or what was the extent of the operation required, he introduced a small exploring trocar into the tumour, and felt it enter a solid mass, which prevented any lateral motion with the instrument. He next perforated the upper jaw above the alveolar process, corresponding to the molar tooth, and found the instrument enter a cavity, in which he could freely move its point, and from which he decided that the case was hypertrophy of the anterior portion of the maxillary bone. He accordingly removed the upper jaw-bone, confining the operation to the simple removal of the part affected, without interfering either with the floor of the orbit or the roof of the mouth.

So far as the operation was concerned, its results, even to the present hour, are most satisfactory. There was a point of some interest, however, connected with the case at the time. The skin was so attenuated by the tumour that it was not thicker than a sheet of paper; it therefore sloughed at that part; and as the edges cicatrized, the lower eyelid became everted and drawn downwards, and an oval fistulous opening formed at the upper part of the left side of the nose, through which could be seen the mucous membrane of its interior. This deformity the girl a second time entered the hospital to get remedied, and on the 3rd of May Mr. Hancock pared the edges of the opening with a small knife; he then cut a small pear-shaped piece of skin from the forehead, and reflected it downwards and to the left, outwards over the fistulous opening, and by means of several sutures its edges were united to those of the opening, and it was completely closed, the wound in the forehead being drawn together by stitches.

Had the skin been taken from the cheek instead of the forehead, the eversion and drawing down of the eyelid would have been increased; but taking it from the forehead, the contribution of the flap has improved the eyelid greatly, drawing it up into its proper place. The operation was done under chloroform. There was a peculiarity noticed during its performance: the paring of the edges of the fistula was followed by copious bleeding, which, as it passed into the nostril, produced much sneezing, from contact with the Schneiderian membrane, although sensibility was, we would suppose, deadened by the chloroform. Some of this blood was swallowed, and afterwards vomited.

Since the operation the case has gone on very well, the parts uniting by first intention. The bridge has not been separated at the root of the nose, Mr. Hancock considering it better to delay this proceeding for some time longer, as he feared the amount of organization going on, or, rather, whether it was entirely established in the transferred part. And again, he was desirous of observing whether the operation would be affected by the further development of the girl. The cicatrix or scar on the forehead is comparatively slight, presenting merely a straight line about a line and a half in width, which does not as yet interfere with the action of the surrounding muscles, as she can corrugate her brows and forehead.

Lacerated Wound of the Ring-Finger from broken glass, followed by swelling and suppuration of the hand; extension of Erysipelatous Inflammation up the Arm; disease of the Right Eye, with protrusion of the globe; Arachnitis; general contamination of the system; Death; Post-Mortem Cerebral Appearances.

(Under the care of Mr. CANTON.)

We have noticed lately, in several of our large hospitals, during the existence of the very warm weather, a tendency to fatal pyæmia and sloughing in cases of recently-occurring wounds, and of ulcers already formed; this has appeared to be a result more especially in such cases possessing a peculiar low type of constitution, in which the vital powers were much below par, and a general sluggishness in the performance of the various functions essential to the preservation of life. Not a few were characterized by an attack of erysipelas, as in the interesting example we record to-day; and so fearful of this scourge have most of our hospital surgeons been, that a disinclination was evinced to perform almost any operation until the temperature of the atmosphere had become somewhat reduced. Meteorological influences most assuredly greatly influence the result of operations, when the reading of the thermometer is high, associated with certain conditions of the atmosphere; it is to these we must attribute, in some measure, the invasion of low erysipelatous inflammation in the slightest breach of surface.

In the subjoined case, which presents a remarkable series of symptoms, the patient entered hospital with erysipelatous inflammation running up the arm, with large vesications, which had supervened on a comparatively trifling wound of the finger from broken glass. The extension of the inflammation was arrested by the application of nitrate of silver, but the constitutional symptoms were very severe. Free incisions, followed by evacuation of offensive matter, gave great relief, the swelling and inflammation subsided, the girl's health began to improve, when, owing to an unhealthy state of the blood, as shown by bleeding from the nose on simply raising her up—the blood being of a light colour and thin consistence—and from other symptoms, she was attacked with severe pain in the head and excessive vomiting, followed by delirium. The right eye became paralyzed, with cedema of the lids and chemosis—an event occurring in typhus and other exhausting diseases, but mostly ending in total destruction of the eye—and some pus came from the orbit. Muttering delirium set in, and a fatal result ensued. Now, most of these symptoms were what might be anticipated in an unhealthy constitution, affected with a trifling wound of a finger, which was especially predisposed to take on an unhealthy action during the existence of such conditions of the atmosphere as lately have been prevailing. In such subjects as these, when a slow form of sloughing phagedæna exists, we meet with a peculiar beef-steak tongue, with moist and elevated papillæ. The alvine discharges were in keeping with this low state, depending not upon a want of, but a vitiated state of the bile. Mr. Canton, in many similar instances,

has been in the habit of employing with benefit yeast, combined with chlorate of potassa, although the first of these was not given in this case. He has found that chlorate of potassa may be given up to a certain point, but when its good effects are obtained, if persisted in, it produces results which are likely to prove injurious, manifested by debility and fever, the consequences of an excess of fibrine in the blood, of itself a condition which predisposes to the invasion of many exhausting diseases. The most striking appearance found after death was purulent exudation beneath the arachnoid, incompatible with the mildness of the symptoms during life, but in character with the other phenomena throughout the case.

Susan S—, aged eighteen, had only been twelve months in London, kitchenmaid at a public-house, was admitted July 11th, 1856. On the 28th of June, while rinsing an ale-glass, it fell from her hand, and, on trying to catch it, she dashed her hand against the broken pieces, severely lacerating the ring-finger of the left hand. On being brought to the hospital, some pieces of glass were extracted with some little difficulty. She was ordered to keep the hand in a sling, and apply cold-water dressing. The next day the finger became swollen and painful, and subsequently it extended to the hand, the back of which was rather puffy. Shivering occurred, with increased swelling and pain, and an opening was made on the 5th of July, extending from the seat of injury to the palm, giving exit to a quantity of offensive matter, with very great relief. The swelling subsided, and the wound discharged freely. Three days before admission, the hand and palm became again swollen, the wound assuming an angry appearance, with redness along the course of the absorbents, attended by shivering and symptoms of fever. She became worse after this, the back of the hand being tense and shiny, and broad patches of a dusky-red inflammation extended up the arm, with large vesications, and excessive pain. She was, therefore, admitted on the 11th of July, when the symptoms were found to be seriously aggravated. The arm, as far as the shoulder-joint, was excessively swollen, the inflammation of a dark colour, and an increased number of vesications; a probe could be passed from the wound in the palm to the back of the hand, and on making pressure in that situation, a quantity of matter could be forced out; there were also subcuticular collections of dark-coloured and fætid serum at the tips of the fingers, which were opened by dissecting off the skin around them, and the wound was enlarged across the palm of the hand. The constitutional symptoms were very severe: countenance flushed and extremely anxious; great thirst; pulse very rapid; great pain in the head; sickness; tongue brown and dry; skin parched; bowels confined. Ordered, nitrate of silver to be applied round the shoulder to prevent the inflammation spreading; full diet, a pint of beer, and four ounces of wine. To take five grains of carbonate of ammonia, twenty minims of chloric ether, in an ounce of decoction of cinchona, three times a day.

July 12th.—The patient is very much better; has slept a little; skin cooler and a little moist; bowels have been freely opened. The back of the hand, however, continues as much swollen as before. The inflammation has not extended beyond the line of the nitrate of silver. Mr. Canton now made two free incisions over the back of the hand, so as to completely liberate the pent-up matter. To apply a poultice; and to take in addition two grains of camphor, and a quarter of a grain of opium, every night and morning.

13th.—The alteration is now very marked; the swelling of the arm has greatly subsided, and the inflammation is not of so dark a colour; skin on the back of the hand wrinkled; swelling reduced, and the wounds made yesterday gape open; discharge escapes freely; the wound looks healthy, and the patient expresses herself perfectly free from pain. The constitutional irritation is now slight; no anxiety of countenance; pulse slower; tongue moist and coated, but clear round the edges; not so thirsty; appetite good; has slept well, and feels perfectly easy.

14th.—Continues to improve. The skin of the palm and back of the hand has now a white shrivelled appearance. A portion round the edges of the wounds was removed this morning. The flexor tendon looks sloughy.

15th.—Tongue clean and unnaturally red; papillæ very prominent; pulse small; countenance pale, and flushes on the least excitement. The wounds look healthy, and the swelling of the arm is materially reduced. Some more dead skin removed.

16th.—Has benefited by a change of wards. The swelling in the arm and hand has completely subsided; discharge from wounds healthy; wounds filling up with healthy granulations; slight febrile symptoms towards evening.

17th.—Attacked with rigors during the night; pulse very rapid; face flushed; tongue furred; nausea, headache, &c.

20th.—Wounds continue to look healthy; no pain or swelling of either hand or arm. She has had but little sleep, in consequence of the pain in the head, which is very severe. The right eyelid droops a little; bowels confined; tongue dry; skin hot and perspiring. To take an ounce and a half of the compound decoction of aloes immediately; a grain of powdered opium and two grains of camphor night and morning; and ten grains of chlorate of potass, in an ounce of decoction of cinchona, three times a day.

22nd.—Pain in the head very severe; excessive vomiting, so that she cannot keep anything on her stomach; right side of the face swollen and red; cannot raise the eyelid, which is cedematous.

23rd.—Has been delirious during the night. All her complaints are referred to the head. The right eye is protruded, and the pupil dilated and insensible to light; great cedema of the conjunctiva, so that the cornea appears sunk. She has erysipelas in the back.

24th.—Has passed a very bad night. The pain in the head continues, but is not of so acute a

character; it is more a sense of weight than actual pain. The conjunctiva now protrudes between the eyelids, looking like the vesication of a blister; she complains of a burning, throbbing pain in the orbit, from which, according to the statement of the nurse, there was discharged during the night about two teaspoonfuls of pus. She had been attacked previously with rigors. A cautious exploratory incision was made in the outer side of the orbit by Mr. Canton, with a tenotomy knife, but without discovering any collection. Mr. Canton did not think it advisable to introduce it at the inner side, at any rate to-day. The tongue is now very dry; pulse full, rapid, and strong; vomiting still continues; bowels relaxed; great anxiety of countenance; face much flushed, and thirst excessive.

25th.—Has been delirious all night—not violent, the delirium being more of a muttering character. —Ten A.M.: Urgent dyspnoea; sphincters relaxed; surface of body becoming cold; pulse very feeble.

She continued to sink from this time, and died at eleven A.M.

Autopsy.—Brain substance generally very firm to the touch, convolutions appearing rather closely pressed together. Meningeal vascularity more extensive over the posterior than the anterior lobes of the cerebrum. Over the lateral surfaces of each hemisphere was a moderate amount of purulent exudation beneath the arachnoid, and following the course of the vessels. On section of the hemispheres, the small relative amount of grey matter was striking, and also the pale hue of the grey matter. The brain matter was very firm indeed, and more injected than normal. Ventricular fluid normal in amount; no softening of any of the central portions. Some purulent exudation on the velum interpositum, on the cerebellum, and apparently at the base of the brain, but now too changed to be satisfactorily determined. Medulla oblongata firmer than natural. No pus was found in the orbital cavity, but its general contents, exclusive of the eye, were redder than natural. The contents of the other great cavities were normal. The blood appeared to be more fluid than is usually seen after death.

KING'S COLLEGE HOSPITAL.

Compact Oseous Tumour of the upper Jaw, of Three Years' growth, in a Girl aged Thirteen Years; Removal; A Tooth found imbedded in its Centre; Cure.

(Under the care of Mr. FERGUSON.)

On many former occasions we have illustrated our "Mirror" with examples of removal of the upper and lower jaw-bones, most of which contained some points of special interest; but it is seldom we have had such a rare opportunity of collecting together such cases of extreme interest as on the present occasion, occurring in the persons of young girls, in whom one side of the upper jaw was more or less affected in each, where a removal

was practised in all, and where the recovery, we may absolutely say, was marvellously rapid in the whole three.

In the two first the disease was precisely similar, being firm, dense, and compact bony tumours of the antrum, the duration being three years in the first and twelve months in the second case. Mr. Fergusson deemed it advisable to remove them, which he accomplished when the patients were completely under the influence of chloroform, administered by the experienced hand of Dr. Snow. Every surgeon knows that the removal of the jaw is one of the greatest achievements of modern surgery; it is comparatively only a few years ago that this operation was considered at all; and now, tumours of the upper and lower jaw-bone, which formerly were permitted to consign the unfortunate patient to a protracted and wretched death, are at once removed by the surgeon, without hesitation.

A point of special interest in all the cases we record to-day, is the manner of making the external incisions, especially as the patients were young females. Of all the methods adopted, that of laying open the cheek in such a manner as the surgeon may fancy, often leaves large and unsightly scars. We need not enumerate the different forms chosen by various distinguished surgeons, but will refer to the plan Mr. Fergusson has been in the habit of practising, and which he has the merit of having originated. He has remarked, that in all instances of removal of the upper jaw which had come under his notice the scar was very conspicuous, and it seemed to him that it might in a great measure be avoided or concealed. The views he had formed he tested with the most satisfactory results, in the following manner, as described in the third edition of his "Practical Surgery." Instead of cutting the lip immediately under the ala, he slits it open exactly in the mesial line in the hollow under the columna, and then carries the knife along one side of the base of the columna into the nostril next the tumour, when he proceeds with the operation of its removal. By opening the nostril in this way, as much relaxation is gained as if the knife had been carried from the root of the ala an inch up the side of the nose, and as much facility is given for the future steps of the operation as if an incision of three inches in length had been made through the lip and side of the nose, whilst the grand object is gained of leaving the slightest possible conspicuous appearance afterwards.

The situation of the incision is such that the cicatrix is scarcely to be seen; that was the case in these two instances, especially so in the second, where the union has been so perfect that it would require a highly practised eye to tell that the knife had ever been used at all. All surgeons concur in the propriety of leaving the least possible mark in such operations as these, but they do not recognise the principle in practice. In the first case, the patient was discharged from hospital cured, twenty-five days after the operation, with scarcely any deformity; and in the second, although the disease was much more extensive, a complete re-

covery from the effects of the operation was obtained in twelve days. We have to thank Mr. W. P. Goodall, the house-surgeon of the hospital, for the brief notes of the following cases:—

Eliza C——, aged thirteen, admitted May 14th, 1856, with a tumour of the upper jaw on the left side, which has been coming three years. It implicates chiefly the alveolar border, and is very slightly prominent. There is no encroachment on the palate or orbit, and the nostril is quite clear. She has never suffered any pain from the tumour, and seems to be in good health.

May 24th.—The patient having been placed under chloroform, Mr. Fergusson divided the upper lip, in the median line, with a scalpel, and, continuing the incision in the left nostril, dissected the tissues of the tumour. Having introduced a narrow saw into the nostril, he cut through the alveolus, and then, with curved bone forceps, isolated the tumour from the surrounding bone, and having grasped it with strong forceps, (technically called the "lion forceps,") tore it from its attachments. Small portions of diseased bone were then removed with curved and angular bone forceps, and some very tenacious mucus was removed from the antrum. The cautery was used to check the hæmorrhage, and the lip brought together with hare-lip pins. The tumour appeared to be of a bony nature, and very dense. Upon a section being made, a tooth was found imbedded in its centre.

25th.—The patient had a quiet night. No hæmorrhage from the mouth, which has been syringed out with tepid water.

27th.—Everything going on favourably. Hare-lip pins removed to-day. Patient sleeps well, and is able to take beef-tea. Mouth syringed out with myrrh lotion.

30th.—Mouth not nearly so tender as it was; patient able to get up and eat solid food.

June 14th.—Mouth not at all tender; no discharge; eats without pain; wound in lip quite healed, leaving only a linear scar.

18th.—Discharged, cured. Deformity is hardly perceptible externally, the scar on the lip being the only mark left. The cheek is nearly as full on one side as the other, and the patient is able to swallow with ease, and to talk with tolerable distinctness.

Compact Osseous Tumour of the whole of the Upper Jaw, of Twelve Months' Growth, in a Girl, aged Sixteen Years; Removal; Cure.

(Under the care of Mr. FERGUSSON.)

ELIZABETH H——, aged sixteen, admitted June 12th, 1856, with a tumour of the upper jaw on the right side. The tumour has been growing for twelve months, and has given no pain: it appears to be an osseous growth, involving the upper part of the jaw, and the alveolar border slightly. The mouth is not encroached upon, but the growth has pushed the inferior turbinated bone inwards, so as to be clearly seen in the nostril. The teeth of the affected side are all sound; the first molar

is wanting, having been extracted about eight months ago. The nasal process of the superior maxilla appears to be enlarged, and the tumour projects towards, without, however, implicating the malar bone, thus rendering the cheek more prominent in that situation. She has enjoyed good health.

June 21st.—Chloroform being given, Mr. Ferguson divided the lip in the median line, and then dissected the tissues of the cheek from off the tumour. A cut was then made with Hey's saws through the alveolus, from the nostril into the mouth, and another cut in a horizontal direction, about half an inch below the margin of the orbit, after which the large curved bone forceps were applied to the back part of the tumour, and a large portion of it removed with the end of the lion forceps. There being still some of the disease left, the bone forceps were applied several times, and by this means all the disease was at length removed. The disease appeared to consist of an hypertrophy of the osseous structures, the bone being excessively dense. The disease involved nearly the whole of the maxilla and a large portion of the malar bone, which was therefore removed as far as implicated. The hæmorrhage was very free, but was controlled by a ligature and the application of the cautery to two or three points. The lip was brought together with hare-lip pins in the usual manner, one suture being applied in addition to the upper part of the section. After being removed to bed, the patient vomited a large quantity of blood, which had been swallowed during the operation. Ordered ice to swallow, and cold water to wash the mouth out with; wine, six ounces.

June 22nd.—Had a tolerably good night; is able to swallow liquids with tolerable facility; has had no more sickness.

24th.—Mouth syringed out with tepid water to get rid of the shreds of slough; mouth less tender; is able to swallow better.

28th.—Patient able to get up and walk into the theatre; is able to swallow with tolerable facility.

July 3rd.—Patient quite recovered from the operation. The lip is perfectly healed, the face only very slightly fallen in; articulation rather indistinct.

7th.—Is quite well. The cavity left by removal of the tumour is gradually filling up. Her voice is becoming more distinct. The line of incision through the lip would scarcely be noticed.

We will remark in relation to this case, that when the girl was undergoing the operation, notwithstanding that the mouth and throat were filled with blood, she did not give a single cough during the whole period of its performance, being completely under the influence of chloroform; this will show that there is not that danger which is so much feared by some surgeons, especially out of the metropolis. In fact, we have seen this operation many times, and many others about the face, with the administration of chloroform, with good results.

CENTRAL LONDON OPHTHALMIC HOSPITAL.

Infantile Entropium.

(Under the care of Mr. HAYNES WALTON.)

PATHOLOGISTS tell us, that the several diseases of man are not strictly proper to any age, as the fœtus in utero may be the subject of any of them—that is, there have been such examples; some, however, are confessedly very rare. In ophthalmic surgery, the most remarkable is undoubtedly congenital cataract, while it is the most frequent. But the occasional occurrence in infancy of those affections that are certainly very common in the adult, and some of them especially in old age—such as entropium, obstruction of the nasal duct, inflammation and thickening of the palpebral conjunctiva, improperly called "granular eyelid," and others, have not been recognised, or at least recorded, by ophthalmic writers.

An example of double entropium of each eye, in an infant, eight months old, has recently occurred at this hospital. Mr. Walton has seen the eyelids so affected several times at this period of life, but never in the same degree, or with equal severity, one eyelid, or both eyelids of one eye only, having been affected. Nevertheless, we do not record it as a surgical curiosity, but rather to give the means adopted for relief, and also to show that the measures so efficient in the adult, and for which all merit is due to Mr. Walton, are equally curative in the small and delicate eye-appendages of an infant. This little patient was badly fed, and consequently thin, and looked like all children, under similar circumstances, very wretched. In the right eye, the tarsus was inverted to the extent to which it ever turns in, and the eyelashes were resting on the cornea, which was very hazy and vascular in the upper part, with an ulcer that had almost penetrated. In the left eye, the entropium was slighter, the outer half of the eyelashes only touched the cornea, and as yet had been productive of but slight opacity. In neither eye did the lower lashes seem to irritate, although some of them rested on the cornea. It could not be ascertained how long this state had existed; but, in all probability, it was not recent, as the outer corners of the eyelids were excoriated. The existing cause could not be discovered. There was no swelling of the palpebræ. Mr. Walton's opinion was to the effect that the entropium had been the primary affection, and the state of the cornea merely the effect of it. He further stated, that unless the right eyelid was at once restored to its place, and the irritation removed from the cornea, the eye would be lost from penetration of the cornea and prolapse of the iris through the aperture. The mother of the child readily consented to the operation.

We must premise, that Mr. Walton attributes, and indeed has proved, the immediate cause of the inversion to be due to the unnatural action of that part of the orbicularis palpebrarum muscle which covers the edge of the tarsal cartilage. The subject is treated in a very masterly manner in his excellent work on the Eye, and is well worth the

perusal of those who would be thoroughly acquainted with this affection. The principle of the operation is to remove this part of the orbicularia, and also, with it, as much of the skin of the eyelid as may be necessary to produce such tension as shall overcome the deformity which the other tissues of the lid may have acquired, from that irregular position into which they may have been thrown by the muscle, and which has been more or less permanent by the changes induced by inflammation.

The right eye, as being the worst, was selected to be first operated on, and the various steps of the operation will perhaps be best given by quoting Mr. Walton's description from his own work on "Diseases of the Eye, and Operative Ophthalmic Surgery," as these directions were strictly acted on:—

"Now, as to the manner of operating: let us suppose that the right eye is to be rectified. An assistant stands behind the patient, and having made the lid tense by drawing it outwards and raising the brow, as is shown in the operation for trichiasis, the surgeon should make two incisions through the skin and muscle, in the course indicated by the lines in the diagram. The flap thus isolated should be forcibly drawn forwards, and slowly dissected by vertical strokes of the knife from the one side to the other, and not taken away by horizontal strokes, or else the muscular portion will not be effectually removed. The wound should be very carefully sponged during the operation. Any arterial jet must be checked by temporary pressure with the finger; I have never found a ligature to be necessary. The exposed surface must be inspected, and, if any muscular fibres have escaped, the forceps and knife must be reapplied. The assistant should continue the proper retraction of the skin till the knife has been laid aside, as essential to steady and effectual dissection. Three or four sutures should be used, and if a patient desires some local treatment, water dressing may be employed. I have operated in about fifty cases, and not in a single instance have any bad symptoms supervened. In all there has been union by the first intention." (p. 165.)

The lower eyelid was operated on according to the same principles.

The result was certainly very satisfactory. The tarsal margins were restored to their proper position, and the cilia removed from the eyeball. Never, perhaps, did an ulcer of the cornea heal more rapidly or more favourably. We saw the little patient a fortnight after the operation, and there was but a slight trace of it; in other respects the cornea had quite recovered itself; it was hardly possible to see where the palpebræ had been cut. This is a great improvement on the old method of cutting off the cilia with a portion of the tarsus, or of dividing the tarsus perpendicularly, which seldom remedied the evil. It was Mr. Walton's intention to operate on the other eye.

Medical Societies.

PATHOLOGICAL SOCIETY OF LONDON.

MR. ARNOTT, PRESIDENT, IN THE CHAIR.

DR GRAILY HEWITT exhibited

THE LUNGS ON FOUR CHILDREN WHO DIED OF HOOPING-COUGH.

The specimens now presented consist of the lungs of four children, who have recently died in the St. Marylebone Infirmary and Workhouse, from hooping-cough, under the care of Mr. Filliter. They are illustrative of the lesions which will in almost all cases be found to be associated with the disease, and all exhibit one peculiar lesion in a greater or less degree. In these cases certain portions of the lungs will be found, on examination, to present that condition formerly known as lobular pneumonia, but which now is ascertained to be in reality collapse of the lung substance, without necessarily inflammation of the parenchyma of the lung itself. Particulars of four fatal cases of hooping-cough were then read, together with an account of the post-mortem appearances in each case, of which the following is an abstract:—

In Case 1, that of a child aged sixteen months, there was collapse of portions of both lungs, with emphysema and subpleural ecchymosis, some of the collapsed portions presenting minute bronchial abscesses.

In Case 2, a child aged twelve months, there was collapse of the lungs, the right middle lobe being quite collapsed, together with the catarrhal or vesicular pneumonia of Legendre and Bailly, and slight depositions of tubercle in one lobe.

In Case 3, a child aged eleven months, there was partial collapse of the lungs, together with double pleurisy and catarrhal pneumonia. Ulceration and inflammation of the Peyerian and solitary glands of the ileum were also noticed.

In Case 4, a child aged fourteen months, collapse of the lungs was also present, with a few bronchial abscesses. This case presented a pathological condition in other respects interesting. The gastric fluid had, after death, perforated the œsophagus one inch above the cardiac orifice of the stomach, and escaping into the left pleura, had eroded the posterior and upper part of the left lung.

In all the cases, slight enlargement of the bronchial glands was observed. The bronchial tubes, especially the smaller divisions, were always filled with a thickish muco-purulent fluid. Emphysema of the lungs always co-existed with collapse of the lung tissue.

Remarks.—The points of interest in these cases may be now briefly recapitulated. The subjects were all infants of tender age—from ten to sixteen months old. The collapse of the lungs was found. It presented for the most part the usual characters, and with it was associated emphysema of the neighbouring lobes or lobules. This is an important fact, as related to the physical examination of

the chest during life. Small bronchial abscesses were also present in most of the cases. The history of these cases during life illustrates one or two points important to bear in mind with reference to whooping-cough in very young children. Only one of them was observed to hoop. So far as I have observed, the intensity and frequency of the hoop is a circumstance of good augury, rather than the reverse. The treatment adopted in these cases was of a stimulating character, mild expectorants, and ammonia, together with a little wine, and counter-irritation by means of blisters. The unfavourable hygienic conditions in which the children were placed, however, coupled with their tender age, precluded a favourable result. Death took place, on an average, about three weeks after the commencement of the disease.

Dr. PEACOCK exhibited

A SPECIMEN OF DISEASED HEART,

forwarded to him by Dr. Thurnam, of the Wilts County Asylum. The heart was removed from a man, sixty-four years of age, who had been an inmate of the asylum for a few months, labouring under symptoms of melancholia, with suicidal tendency, and who had for years suffered from dyspnoea, lividity of the face, and other symptoms of cardiac disease. He died of double pneumonia at the end of the last year. The heart was much hypertrophied and dilated, weighing fifteen ounces and a half, and the cavity of the left ventricle was large, and its walls measured above an inch in thickness. There was very marked obstructive disease of the aortic orifice, dependent on congenital deficiency of the semilunar valves, there being only two segments. One of these was apparently formed by the fusion of two distinct valves, there being the remains of the usual frenum or band on the outer side. The segments were, however, nearly of the same size, and from the extensive thickening and ossification, the mode of origin of the malformation was less obvious than is frequently the case.

Dr. GIBB exhibited specimens of

LOBAR PNEUMONIA OF THE WHOLE OF THE LEFT LUNG, AND DISSEMINATED CARNIFICATION WITH EMPHYSEMA OF THE RIGHT LUNG, FROM AN INFANT.

The child, eight months old, was attacked with capillary bronchitis ten weeks before death, which lapsed into pneumonia of the entire left lung. The cough, although at first loud, was not paroxysmal, and there were no symptoms whatever of pertussal disease. At the autopsy, the left lung was found completely solidified, in a state of true hepatization, with the exception of a small portion, the size of a marble, which was emphysematous. The right lung was affected with interlobular emphysema in various parts; its middle lobe was carnified (not hepatized). This condition was also present in the middle of the upper lobe, at its apex, and at its anterior part—in three distinct situations. Between the affected portions of lung, the emphysema was well marked. Inflation pro-

duced no effect on the left lung, nor upon the carnified portions of the right lung. The muscular fibres of the trachea and bronchi were normal. The interest of the case consisted in the whole of one lung being affected with inflammation, a condition by no means uncommon in infants, but denied by some writers; and the presence of carnification in the opposite lung, associated with emphysema. Carnification is believed by some very recent writers to be almost exclusively the consequence of pertussal disease, whereas it is a condition very common in children suffering from chest affections generally, who may not have died of pertussis, nor ever affected with that disease.

Mr. W. ADAMS exhibited a specimen of

SCROFULOUS NECROSIS AND CARIES OF THE TWO LAST DORSAL AND TWO UPPER LUMBAR VERTEBRÆ, WITHOUT PSOAS ABSCESS, BUT WITH ABSCESS PASSING BACKWARDS AND UPWARDS, AND OPENING EXTERNALLY OPPOSITE THE SPINOUS PROCESSES OF THE LAST CERVICAL AND FIRST DORSAL VERTEBRÆ.

This specimen was removed from the body of a boy, aged twelve years, a patient of Dr. J. S. Lavie. The boy was of a decidedly strumous diathesis, though said to have been strong and healthy up to six years of age, when he had the measles. After this he ailed continually, and suffered from strumous abscesses in the foot, attended with exfoliation of bone. About six months before his death, he fell upon his back, and after this complained of severe pain in the spine. The spinal column became rapidly curved; posterior angular curvature formed, with prominence of three or four spinous processes in the lower dorsal and upper lumbar regions; and gradually the upper part of the spine fell forwards to an obtuse, or almost a right angle with the lower portion. Six weeks before his death, when he first came under the care of Dr. Lavie, there was an external abscess in the upper dorsal region, having a tender spot on its surface. This soon gave way, and an ulcerated aperture, the size of a shilling, formed over the spinous processes of the seventh cervical and two upper dorsal vertebrae, which were now seen projecting into the cavity of a large abscess leading downwards towards the angular curvature. The discharge was at first profuse, and afterwards frothy pus was seen to well up in the cavity of the abscess. The quantity of pus could be immediately increased by placing the patient in the horizontal position. The boy remained day and night in a sitting posture, supported by pillows and also by his arms, with the hands resting on the bed, so as to act as natural crutches, or supports to the upper part of his spinal column. Any attempt to lie down produced difficulty of breathing and urgent symptoms. The power over his limbs remained unimpaired; neither was there any paralysis of the bladder or rectum. The boy was in this state when first seen by Mr. Adams. He was extremely emaciated, and gradually sank.

At the post-mortem examination, the two last dorsal and the two upper lumbar vertebrae were found completely destroyed, and for the most part removed, portions only remaining in a necrosed

condition, and loosely connected with the surrounding tissues. Two of the arches of the vertebræ were also in a necrosed condition. They presented the ordinary dead-white appearance of necrosed bone; were separated from the soft tissues, and bathed in pus. From this circumstance the pus had found its way backwards amongst the spinal muscles, but its upward direction was not so easily to be accounted for. Possibly it might have been determined by position in the early stage. There was no disposition to psoas abscess. There was no appearance of tubercular deposit in the cancellous tissue of the adjacent vertebræ. The dura mater of the spinal cord was coated with pus and lymph, and a small quantity of lymph existed between the arachnoid and dura mater. The cord itself was healthy, and had not suffered compression. The lungs were studded with miliary tubercles; but the other organs were all tolerably healthy.

In reply to a question from Mr. MITCHELL HENRY,

Mr. ADAMS stated, that from opportunities he had had of examining destructive disease of the spine in its early stage, at St. Thomas's Hospital, he believed that when the bones were primarily attacked the disease assumed the character of necrosis rather than caries; but that when it commenced in ulceration of the intervertebral cartilage, destructive disease extended itself both by caries and necrosis, as in the diseases of joints generally. In the present instance, the large chasm had evidently been produced by a combination of all three processes; but necrosis had probably been the primary and predominant form.

Specimens illustrating the progress of destructive disease of the spine, exhibited by Mr. Adams, were described in the third and fifth volumes of the Society's "Transactions."

Dr. GIBB exhibited

A URINARY CALCULUS FROM A FIELD MOUSE.

weighing three grains, of a circular and flattened form. He observed that amongst the rodentia, calculi were commonly found in the rat, occasionally in the hare and some others of this class, but hitherto it had not been noticed in the mouse; the specimen therefore was unique. Dr. Gibb also exhibited a large bezoar, of an irregular reniform shape, weighing five ounces and a half, taken from the stomach of a cow, which had been the cause of death. Also an united fracture of the femur of a turkey, and an osseous tumour on the rib of a pig.

Dr. WILKS exhibited a specimen of

CYSTIC DISEASE OF THE LIVER AND KIDNEY,

an old preparation from the museum of Guy's Hospital, exemplifying this rare form of disease, and which he brought to the Society to be placed in association with a very similar specimen shown at the last meeting by Dr. Bristowe. The liver was converted into an immense number of cysts, and which closely resembled those of the kidney with which it was in contact. He quoted from Budd

and Cruveilhier, who speak of cysts originating in dilated ducts from obstruction to their passage, but thought these specimens displayed a disease altogether different—a chronic cystic degeneration analogous to what is seen in various other organs, and unattended by any marked symptoms.

Dr. BARKER exhibited specimens from, and related the particulars of, the following case of

HYPERTROPHY OF THE HEART, WITH EXTENSIVE EFFUSION INTO THE RIGHT PLEURA.

W. H——, a biscuit-baker, aged forty-eight, admitted into St. Thomas's Hospital, February 5th, 1856; a man of medium height and size, with a considerable curvature forwards of the upper dorsal vertebræ, which he attributed to his occupation of carrying heavy sacks of flour. He had had rheumatism fourteen years ago. At first he dated his illness from six days only before he was seen by Dr. Barker, when he had been attacked with cough and pain between the shoulders; but he afterwards admitted that he had had more or less of dyspnoea since October, that for five weeks he had had palpitation, and that after the occurrence of this symptom he had had frequent paroxysms of dyspnoea, resembling in most respects those of aggravated spasmodic asthma, increased and often brought on by the recumbent position, and aggravated by foggy weather. He was most easy when sitting, and with his hand pressed on the seat, so as to elevate the shoulders. The breathing was always laboured; and he had frequent paroxysms, especially at night, of severe dyspnoea, when he became very restless and anxious. Although the impulse of the heart was very great, it did not appear to distress him much; but he complained greatly of the annoyance caused by a jerking throb of many of the arteries, especially in both the brachials. Notwithstanding the frequent and often very severe and long attacks of dyspnoea, an examination of the chest did not reveal any disease of the lungs or bronchi, with the exception of symptoms of slight congestion in the lower and posterior portion of each lung—at least, in this position, the breath sounds were rather feeble, and the resonance was a little less than natural. The dyspnoea, however, was sufficiently accounted for by extensive cardiac disease. Over a space, bounded by the lower edge of the third left rib above, a line about an inch to the left of the nipple of the left side, the right margin of the sternum on the right, and the seventh rib below, there was complete absence of resonance on percussion, and no breath-sounds could be heard, whilst very strong impulse of the heart could be felt over the same space; but, in the same region, a very distinct diastolic bruit could always be heard; at the apex, a loud and distinct systolic bruit was constant. Over the subclavian, axillary, and brachial arteries, on both sides, but more especially on the left, the jerking pulse peculiar to regurgitant disease of the aortic valve, was felt with unusual distinctness; and there was also a vibrating thrill in the same arteries, leading to the belief that they were dis-

eased. The pulse at the wrist was jerking, but feeble. A very faint systolic bruit could be heard over the aortic valves, but this was not constant. Dr. Bristowe, however, who had seen the man a short time before he came under Dr. Barker's notice, told him that a systolic murmur was then very distinct. At the apex of the heart, a very distinct and loud systolic bruit was constantly present; at the base of the heart, a loud, harsh, diastolic bruit could be heard at all times.

The diagnosis was not difficult. It was evident that the heart was greatly hypertrophied, and its cavities dilated, especially on the left side; that there was regurgitation through the aortic and mitral valves; and that there was also some obstruction at the aortic orifice. The strong and peculiar vibration felt in the arteries of the neck, and in the axilla, led Dr. Barker to expect disease in their coats; but this as was seen after death, existed only to a slight extent. By the use of diuretics, and a draught of morphia and chloric ether at night, he obtained much relief and slept better. On the 14th, the dyspnoea had suddenly and greatly increased, and there were then unequivocal signs of effusion in the right pleura. From this time the symptoms did not vary in character, though there was considerable alteration, from day to day, in their degree; he gradually became worse. Dropsical effusion in the legs, which at first had been absent, became considerable, the fits of dyspnoea became more frequent as well as more severe, and he died on March 7th.

Post-mortem, March 8th.—About three quarts of clear serum were found in the right pleura, and the lung was compressed so as to contain very little air; it was not otherwise diseased. The left lung was congested, but was pervious to air in all parts. The heart was greatly hypertrophied and dilated, so as to occupy the whole of the space which corresponded to the portion of the left side where unusual dullness was perceived when the patient was first seen; it weighed thirty-seven ounces; the hypertrophy existed principally in the left ventricle. The free edges of the aortic valves were thickened and compacted; their extremities did not quite reach those of the next valve, and two of them had perforations the size of a crow's quill, which must either have been congenital or of long standing. It was evident that these valves would offer some obstruction to the flow of blood from the ventricles, and would offer little impediment to regurgitation. The arch of the aorta, and commencement of the large vessels of the neck, contained a few small patches of atheromatous deposit; the curtains of the mitrals did not appear to be diseased, but they were small, and the chordæ tendinæ and columnæ cornæ had not increased in proportion to the hypertrophy of the ventricles.

The points of interest in this case are—

1. The short time during which the symptoms had been urgent.

2. The slight amount of distress directly referable to the heart; palpitation was complained of by the patient, and he was not sensible of the impulse of the heart.

3. A great increase in the loudness of the heart's sounds, as heard on the right side of the chest, and a great increase in the pulsation to the right of the sternum after extensive effusion had taken place in the right pleura.

4. The well marked symptoms of regurgitation through the mitral valves, though the curtains of the valves seemed perfect after death.

MR. JOHN BIRKETT exhibited, for MR. EDWARD HACON,

AN ADENOCELE, REMOVED FROM THE REGION OF THE MAMMARY GLAND.

A healthy-looking woman came under the observation of Mr. Hacon, in February, 1856, on account of an enormous tumour occupying the site of the left breast. She was born in, and a resident at Hackney. When thirty-five years old, she first observed a hard lump in the clavicular lobes of the left breast. This gradually increased for four years and three months, until it reached the size of the growth exhibited to the Society. A few months after first discovering the swelling, Mr. Francis Toulmin was consulted, and he was then of opinion that there was a cyst with fluid. He did not see her again until lately, having then advised an operation, to which the patient would not assent. The patient is certain she received a contusion of the left breast a few months before she noticed the lump. She has occasionally felt darting pains in the tumour, but inconvenience from its weight and size, rather than positive pain, is complained of. The large mass was somewhat pendulous, very moveable on the thorax, divided into a larger superior and a smaller inferior portion by a superficial sulcus, the lower portion resembling very much the breast, increased in size, and pushed from its normal position. To the sight, the surface of the growth was smooth, the skin over it red, deeply congested, and traversed by large veins. About its centre was an ulcer, or rather opening in the skin, the edges of which were thin, as if a piece had been punched out. From this, as well as from a factitious opening, ichorous discharge flowed freely. To the touch, the surface was irregular, soft in one place, hard in another; here the fluctuation of fluid was perceptible, there it was distinctly solid. Where the large veins ran, furrows were very distinct, and large pulsating arteries were easily felt beneath the integument. Little had been done to the case, and lately she had been told the disease was incurable by a pretender to the cure of cancer, who called this disease "brain cancer." In fact, she had resigned herself to death before she made application to Mr. Hacon for relief. The lymphatic system of the region was quite healthy. She was of a remarkably calm, resigned, and composed mind, and had a healthy constitution, although she looked careworn and distressed. She was a single woman, and one amongst the working class. The right mammary gland was moderately developed; the nipple small. The catamenia were healthy. In order to relieve tension, Mr. Hacon punctured a cyst a few days before removing the tumour. On the 24th, 0

March, he removed the mass whilst the woman was under the influence of chloroform. The wounds bled freely, but there was not a very large quantity of blood lost. The growth was very much identified with the pectoralis major, and this muscle seemed wasted by the pressure of the growth, and its fibres involved in inflammatory adhesions, rather than infiltrated by the new formation. Portions of a cyst, which was probably the primary disease, were closely adherent to the integuments and the axillary portion of the pectoral muscle, and it required careful dissection to separate them, and leave the fibres of the muscle. A considerable portion of the pectoral muscle was eventually sacrificed. A large number of ligatures were required to check the bleeding, and two arteries were very large. The growth was composed of lobes, lobules, and cysts, and exhibited two portions corresponding with its outward appearance. The largest portion was composed of cysts, some with intra-cystic growths. The other part was solid, and consisted of a close, dense, fibrous stroma, and of lobes of a softer and more succulent structure. All these intra-cystic growths showed the elements and tissues of imperfectly-developed gland-tissue. The mammary gland itself was entirely atrophied. The nipple, quite rudimentary, was visible, and from it the ducts were traceable into a fibrous tissue spread over the lower border of the growth. In about the centre of the portion of skin removed was a perforation, and this opening led into a large sloughy cavity, just beneath the skin, and upon the surface of the tumour, parts of which were in a gangrenous state. The mass removed weighed seven pounds. This new growth belongs to the second division of these tumours, described by Mr. Birkett in "Guy's Hospital Reports," Third Series, vol. i. p. 152.

Dr. VAN DER BYL exhibited a specimen of

CANCEROUS GROWTH OF THE KIDNEY, WEIGHING THIRTY ONE POUNDS.

This enormous growth of the kidney occurred in a boy eight years of age, who was admitted into the Middlesex Hospital about twelve months ago. The history is briefly as follows:—The child's abdomen, soon after birth, became larger on the left side than on the right. It continued to increase in size very gradually until six months before his admission into the hospital, but it grew very rapidly afterwards. When he was admitted, the abdomen was much enlarged and crossed by large tortuous veins. The enlargement existed especially on the left side, and was produced by a tumour about eight inches in diameter. The tumour was slightly moveable, semi-elastic in some parts, and not painful on being handled. The intestines were felt over the edge of it on the right side. Four months after admission he walked a short distance, but had to be carried back to bed. He occasionally complained of great pain in the abdomen, which increased so much in size that he was soon unable to leave his bed; but he lingered on for months. His appetite was generally good, and his bowels regular; but he became gradually

very thin, and died from exhaustion about ten months after admission.

Post-mortem Examination.—On opening the abdomen, the parietes were found to adhere to the enormous tumour, which filled this cavity. The adhesions were firm, and extended over the greater part of the tumour. The abdominal viscera were much displaced; the liver, spleen, stomach, and greater portion of the intestines, were pushed upwards into the thorax, the lower ribs on both sides being much raised and expanded. The sigmoid flexure of the colon crossed in front of the tumour, and was adherent to it, but there was no obstruction to the passage of fecal matter. The anterior aspect of the tumour was found to consist of the concave portion of the right kidney, which was enormously enlarged. The pelvis of the kidney was directed forwards and outwards, and measured seven inches in length and five in breadth; but although so much enlarged, it was not much altered in appearance. The ureter was of the natural size, and yielded some clear urine when pressure was made over the distended pelvis. A soft mass, the size of an egg, protruded from the lower part of the pelvis of the kidney, but the renal tissue surrounding the pelvis appeared tolerably sound, and in a vertical direction measured twelve inches. Beyond the limits of the healthy renal tissue the kidney substance seemed converted into a thick fibrous layer, which quite surrounded the growth. The entire growth, when removed weighed thirty-one pounds, and measured thirty-two inches in circumference transversely, and thirty-six inches in circumference vertically. It was closely covered by peritoneum, and on the anterior and upper part of the tumour were several flattened masses of somewhat rounded outline; but these were easily separated from the main growth, and were probably only enlarged glands. On section, about eight pints of a dark, grumous, viscid fluid, escaped, containing numerous yellowish, shreddy, sloughing masses. About one-third of the tumour being removed by a vertical cut, made so as to leave the pelvis of the kidney entire, the cut surface presented anteriorly near the pelvis a margin of renal tissue, about one-third of an inch thick, and this could be traced all round the tumour, but gradually became converted into a fibrous layer, the true kidney tissue having quite disappeared four or five inches away from the pelvis. The interior of the tumour presented a soft gelatinous medullary substance, of a yellowish colour, with some patches of semi-transparent material, (but not colloid,) and it was traversed by fibrous bands; some portions were hanging in shreds and sloughs in all directions, but the breaking-up seemed furthest advanced at the part most distant from the pelvis, where it had indeed reached the distended fibrous layer which bounded the growth. At the upper part of the tumour is a protuberance, apparently in the early stage, which presented a semi-transparent, somewhat gelatinous, pale-yellowish medullary appearance, and is evidently of recent origin. The right kidney weighed seven ounces, but exhibited no trace of the disease. The other

organs—viz. brain, heart, lungs, liver, &c., were all free from the disease, and tolerably healthy. The microscopic examination of the diseased kidney confirmed our opinions as to the cancerous nature of the growth. The fluid taken from the protuberance at the upper part of the tumour exhibited large cells with several nuclei and nucleoli, caudate, and spindle-shaped cells, with granular corpuscles and molecular matter.

IMPORTANCE OF LOCK HOSPITALS TO THE PUBLIC HEALTH.

It has lately been observed by an able and learned Trans-Atlantic writer,* that "eloquence gives spirit to the pulpit, and to the bar, but the Genius of Medicine sits pensive and alone, her finger on her lips, as if admonishing her votaries by the example of her own silence to bury deep within the recesses of their bosoms the disclosures of the sick." Silent profession as ours is, there exists a limit to its taciturnity, not the less to be despised, too, because, when broken, our utterance may bring back the remembrances of many frailties in those to whom our admonitions may be addressed. And yet, when our teachings are the most painful they are oft the more necessary, and those who neglect to listen too frequently reap in the future a harvest far more sorrowful than the pain of our advice. In tendering the latter, we ourselves occasionally feel much repugnance in offering what we know will be most unwelcomely received, but this, so far from deterring us from our duty, is often the rein that guides us to the goal. We have felt the latter once more tightening, as we read Dr. Ross's letter, published a short time back, (*THE LANCET*, August 23, p. 233), and recalled to our memory how that four years had nearly elapsed since we first warned the public of the havoc that syphilis was playing in the two great "services;" of the absolute necessity that existed for the speedy institution of "Lock Hospitals" at all our chief naval stations, and in our larger cities, and of the worse than false modesty—yea, of the intensity of the *sham* which led the Government and the people obstinately to evade the subject.

Syphilis existed; it was a disease always repulsive, frequently disgusting; moreover, it was an ailment of our own seeking, and only obtained after the infraction of both moral and physical laws. Fornication was contrary to all ordinary, much more to Christian, morals, and promiscuous sexual intercourse was opposed to physiologic laws. This and more we frankly admitted; but we urged, here is syphilis nevertheless: here it is apparently increasing, with all our boasted improvements; here are the medical officers of the army and navy affirming that militia recruits are affected to the extent of twenty-five per cent; that numbers of their men in the line are constantly unavailable

from the same cause; that half a ship's crew is affected, and men are "quite rotten;" and that it had been shown, that in some densely-populated districts, syphilis was prevailing "to an extent barely credible." We did not heighten this picture, much less did we create it: indeed, it was one that we should never have thought of painting, if we had not deemed that our duty pressed it upon us. We therefore broke silence upon the question, demanded an audience of the profession and the public, frankly told them of the havoc and misery that stealthy and loathsome malady syphilis was committing in the land, and summed up with the advice and the warning to at once stop its onslaught by the erection of Lock wards and institutions, or otherwise the time might not be far distant when we should see that fearful disease in our own land which was said to have once "graced" the domains of JOANNA, the Queen of the Two Sicilies. But, if syphilis *was* here, here it might be, seemed to think the public—nay, it *must* be. Who could move in the matter? what could be done? If Government took it in hand, the "House" must talk about it. Besides, Government did neither build nor support civil hospitals. It ordered its police, it is true, to take all mutilated members of the state, or all drunken ones who were run over, or had their heads broken, into the first hospital they came to, and left its own injured officers to be cared for there as well; but, as to giving one penny to the very poorest and most struggling of these institutions, it delicately waived that honour. What, then, could be expected in favour of Lock hospitals, whose prospective inmates did not reap their misery in disturbing the equanimity of the official race, but obtained it in a method the lords spiritual and temporal of the United Kingdom would rather prefer not to talk about? If, then, the State could not act, much less could the people. Lock hospitals must be supported, but who would organize the festivals, get up the dinners, make speeches at them, and ask for subscriptions? The thing was impossible—modesty revolted at it. In fine, we chose to get syphilized, so we must put up with it, pretend to know nothing about it, or at any rate hide our misery. That this was the *general* view that was taken, we have had sufficient reason for knowing. But whether that our own representations did not fail utterly, or from whatever other cause, we have been gratified to hear that the Admiralty have, with some liberality and candour, answered the appeal. Five hundred pounds are granted annually by it to the Royal Portsmouth Hospital, for the support of "Lock wards," with twenty beds for females. Dr. Ross lately visited them, and found them in full operation, which has continued, we are glad to hear, since February last. But we are not surprised, though sorry, to learn that cases are frequently refused for want of room; for what can twenty beds do for the syphilized females of our most important naval station. Still, for such limited good as they can effect, we should be grateful, and accept the first step in the right direction which has been made by the Admiralty as an

* The Medical Profession in Ancient Times. By John Watson, M.D., Surgeon to the New York Hospital.

hopeful earnest that the War-office likewise will not turn a deaf ear to our remonstrances, nor the public at large persist in ignoring one of the most patent and painful consequences of "that sin of great cities," which rides rampant, not only amongst the weakest, but over the very "sinews of the land." It is not our duty to search out the remedies for those moral obliquities which play so important a part in the causation of this pestilence, that destroys as well as it degrades; but it is our lot to sit as guardians over the condition of the public health, and to offer such suggestions of a scientific character to the State, the people, and the profession as we conceive will be best adapted to improve any mischief which may happen to arise. That we have the latter in a potent form the public must know, for it has required, on our part, no difficulty in learning that whilst in 1837 one man in five that enlisted was diseased, ten years later one in three was syphilized; that in the Navy one in seven is affected, whilst one in every three of the patients that enter the *Dreadnought* hospital suffers some venereal affection. Finally, amongst the out-patients of St. Bartholomew's Hospital, one-half labour under syphilitic disorders—at least, so Mr. Acton informs us. To shut our eyes, then, to such an evil as this (and much more that we might advance) implies, is folly—to permit it to go on increasing, reckless danger; but to pretend that that people, nation, or State amongst whom it occurs is of such delicate sensibility, high purity, and untainted moral worth, as neither to require the matter to be discussed, nor to be able (for modesty's sake) to discuss it if such need existed, is such a transparent error of hypocrisy as, we should suppose, needed only to be exhibited to be at once displaced.

POISONINGS BY ANTIMONY AND ARSENIC.

At last we have some gleam of hope that the importance of a subject which we have repeatedly discussed is beginning to be recognised. The indiscriminate sale of poisons to the public—the want of efficient restrictions which should have the effect of preventing injurious agents from reaching the hands of the careless, the mischievous, or the wicked—have been denounced from the Bench, echoed from the Bar, and commented upon by the influential organs of the press. SYDNEY SMITH was well known to have said, that not until a bishop, or some other high dignitary, had lost his life through railway mismanagement, would any legislative measure be carried so as to render railway travelling safe to all classes of the community. It would seem, by a parity of reasoning, that not until many lives have been sacrificed in consequence of dereliction—whether intentional or otherwise—are the minds of the public sufficiently drawn to the monstrous defects in our law which suffer poisons of any kind to be sold to any persons for whatsoever purposes they may be demanded.

In the present *LANCET* we publish the abstracts of two trials at the South Lancashire Assize, at one of which it was proved that a man had lost his life from the continuous administration of tartarized antimony; whilst, in the other case, a man and also a child, were nearly destroyed by means of arsenic, from the effects of which, strange to say, they both eventually recovered. Whether in the case of poisoning by arsenic, or in that of poisoning by antimony, the agent was actually administered with the intention of causing death it is not our purpose here to inquire. The point to which we chiefly wish to draw attention, is the readiness with which poisons may be procured at druggists' shops.

The Times, in some leading remarks, on Friday the 22nd instant, whilst treating of one of the cases to which we allude, states—

"For all that has yet been done, arsenic is freely sold and freely bought in market overt. A bleary-eyed boy, domiciled amongst 'dummies,' gallipots, and invalided leeches, freely dispenses it by the handful to the first ragged girl or desperate matron who is anxious to deal. Nay, let her but put forward the flimsiest pretext of fleas, bugs, dogs with sore ears, or any domestic affliction of that description, and the lethal commodity is actually forced upon the reluctant customer."

The case in question betrays the greatest amount of carelessness as to the sale, and ignorance as to the article sold. A boy, seventeen years of age, at a druggist's shop, is asked by one of three females, *whom he does not know*, for a quarter of a pound of mercury, to kill fleas; and instead of mercury, he actually weighs her arsenic, in the presence of his master, who contents himself with the question, "Are you aware what this is for?" and the remark, "You must be careful; it's very severe stuff;" and then sanctions the sale of the arsenic to unknown persons, and receives the money. At the trial, the sapient juvenile asserts, in his examination, that "mercury and arsenic are the same thing;" and in answer to a question by the Judge, he announces his belief that *a teaspoonful of arsenic would kill a person*.

And by such hands as these are poisons suffered to be distributed broad-cast amongst the population.

The Times goes on to remark that the public have a right to be protected against these accidents; as if there were no law actually in existence for the purpose of protection. Why there is an Act expressly to regulate the sale of arsenic. Some of its chief provisions we have already quoted in *THE LANCET* of June 21, amongst observations of our own on the indiscriminate sale of poison. The Act provides that every person who sells arsenic shall enter in a book a statement of the sale, the quantity sold, the purpose for which it is professedly required, the name, abode, and occupation of the purchaser, and that this entry shall be signed by the purchaser, or otherwise attested. Also that no person shall sell arsenic to another *unknown to him*, unless in the presence of a known attesting witness; nor to any person under full age; nor unless the arsenic be coloured: and the penalty for offending against any of these particulars, or for

giving the vendor false information as to the purpose for which the arsenic is required, is a fine for every offence, which may amount to £20, on a conviction before two justices of the peace.

Why is this Act suffered to be a dead letter? We have always contended that the legal restrictions upon the sale of arsenic ought to be extended to other poisons; but what would be the use of this if an Act for general protection of life from poison were to be carried out no better than the legislative measure respecting arsenic?

The case of M'MULLEN, who was poisoned by antimony, in which instance a verdict of manslaughter was returned against the widow, reveals a state of things in the manufacturing districts which many persons would have been totally unprepared to learn. Powders under the name of "quietness" or "quietners," containing as much as four grains of tartarized antimony, are habitually sold in Bolton, and doubtless elsewhere, to wives with drunken husbands, and administered at the discretion of the former—who are only verbally told by the druggist—if they ask how to use it—to divide the powders into four parts, each of which is sufficient for a dose.

In this case, the evidence went to show that these powders, or antimony in some other form, had been given by the wife to her husband even during the attendance of the medical practitioners, and not merely to cure a drunken fit. Well might the judge at the conclusion of the trial say, that druggists who lend themselves to such practices are amenable to a charge of manslaughter if death ensues. The jury, through their foreman, declared their horror of the practice of selling poisons indiscriminately, and the judge who presided expressed himself still more strongly on the subject. We quote his words:—

"It is really a practice which one would have expected to find in this country the last of any in the world; and that, in a country where human life is most valuable and the most protected, we should have these poison-shops selling these deadly poisons—arsenic, for instance—under a slang name, is truly monstrous!"

His Lordship further expressed from the bench a hope that those who have the power of altering the law will attend to the remarks of that jury. *The Times*, also, in a leading article of Tuesday last, announced the opinion that it was time for the Home Secretary to interfere in the matter; and now that the subject has obtained full attention in such influential quarters, we may reasonably expect an amendment of the law as regards the sale of poisons.

There is an aspect in which the cases of domestic poisoning which have lately occurred are presented to the consideration of medical practitioners in a most portentous form. From the evidence adduced in the case of M'MULLEN, it appeared that for several days previous to the man's death, his wife and servant were not allowed by the medical attendants to administer to him any food: that duty was entrusted to a nurse. But the man continued to manifest the same symptoms down to the time of his death. If the poison were not

mixed with his food any longer, was it not introduced into his medicine after the latter had reached his house, as the Judge believed to have been the case? It will be recollected that DOVE, in his extraordinary confession, stated, "I took the cork out of one of the bottles (of his wife's medicine) and touched the wet end of it with strychnia. I then put the cork in the bottle again, and *shook up the draught*." And again, "On the Tuesday night or Wednesday morning, I applied the wet end of the cork of the *medicine bottle* to the strychnia as before. . . . I *shook the mixture up*."

. . . . On the Thursday, I got another bottle of medicine from Mr. MORLEY's, and I again *applied the wet end of the cork to the strychnia, as before*." And then with reference to the fatal dose which terminated the catastrophe at Leeds, "I poured the mixture into that wine glass which contained the water and the strychnia." Easier would it be in many instances to introduce the poison into the medicine than into the food without detection, and frightful the responsibility thus entailed on the medical attendant. When persons, as in the case of NEWTON, can so readily cast the blame of causing sickness upon a "stew," to the injury of an honest tradesman, they could with equal readiness, and more chance of impunity, throw the blame upon the remedies of a medical practitioner who is known or may be presumed to have poisonous agents in his possession, and kept in the same room—aye, even on the same shelf with his other drugs. And mark the peril of the proof. Let the medicine, innocent as it may have been when it left the hands of the medical attendant, be subjected to analysis after it has passed within reach of the secret murderer—and a deadly poison is perhaps found. Who placed it there? In the absence of very positive proof of a criminal intention on the part of another person, the presumption would be strong that the medical attendant had been guilty of a mistake, and this impression would easily become rivetted in the minds of the public, so ready are nonprofessional persons to attach blame to the cultivators of medical science. Who then is safe? Who, amongst medical practitioners, but must feel that his reputation hangs upon a thread, if amongst his patients he counts the crafty and designing! For self-protection, then, amongst other reasons, we call upon our professional brethren to unite with determination, and call upon the legislature for a stringent law to subject the sale of all poisons to severe and wholesome restrictions—in order not only that crime may be repressed, and unfortunate mistakes prevented, but also that their own professional characters and peace of mind may no longer be at the mercy of those who scruple not to mix poisonous substances in the medicines as well as food of their victims, and gamble with reputations as with lives, reckless of all others as of their own.

Chemistry and Pharmacy.

REPORTS

ON THE

PROGRESS OF CHEMISTRY,

ESPECIALLY WITH REFERENCE TO ITS

APPLICATIONS TO MEDICINE AND PHARMACY.

BY WILLIAM BASTICK, ESQ.,

PHARMACEUTICAL CHEMIST.

No. V.

Detection of small Quantities of Iodine.—Iodic acid and hydriodic acid produce, when they react on one another, iodine. A fluid which contains so small a quantity of a metallic iodide that nitric acid and starch fail to exhibit a blue colour will, on the addition of iodic acid, or a metallic iodate, afford this reaction. A mixture of iodide of potassium and iodic acid alone will not separate iodine, and therefore will not give a blue colour with starch. The delicacy of the reaction on hydriodic acid by the addition of iodic acid is increased by the contribution of the iodine of the iodic acid to the iodine derived from the hydriodic acid.

Liebig employs this method for the discovery of iodine in mineral waters. In such cases, when the mother liquor is first mixed with starch, and then with pure muriatic acid, upon the addition of iodic acid, Liebig observed that muriatic acid alone produced quite as distinct a blue coloration as can be obtained by chlorine, hyponitrous acid, or any of the known methods. He therefore drew the conclusion that mineral waters must contain one or more bodies which abstract the iodine from the hydriodic acid. With certainty, Liebig has shown that this is occasioned by the presence of saltpetre, which he finds many mineral waters contain in proportionately large quantities.

Method for the Detection of small Quantities of Lead and Copper.—To detect these metals, Löwenthal evaporates their solution to dryness, and dissolves the residue in about three drachms of strong sulphuric acid by digestion on a sand-bath. When cool, he pours the solution into a test-tube, and adds thereto six or eight drops of muriatic acid. A white turbidity immediately results, if lead and copper are present. When the copper is present in somewhat larger quantity, the colour of the turbidity is not white, but yellowish-brown. By these means, $\frac{1}{100000}$ of a grain of lead, and $\frac{1}{100000}$ of a grain of copper, can be detected.

New Method of making Sulphuric Acid.—According to Kuhlmann, when oil of turpentine is placed in contact with an aqueous solution of sulphurous acid, and exposed to the air for some days, the mixture becomes heated, and its temperature rises 90° Fahr., and even higher; the odour of sulphurous acid quickly disappears, after which, the ordinary temperature is restored. By this reaction, for which, as it appears, the influence of

the sun's rays is required, sulphuric acid is formed at the cost of the oxygen of the ozonized oil of turpentine. The ozonized oil exhibits the same oxidizing properties towards hyposulphites, arsenious acid, &c.

The Saponification of Neutral Fats by Soap.—Milly has shown that the quantity of lime previously employed for the saponification of fats, which he had already reduced from 15 to 8 or 9 per cent. of the fat, may be still reduced to one-half, and that 4 per cent. is sufficient when the lime, the water, and the fat, are exposed to a higher temperature.

To test Milly's statement, Pelouze prepared some neutral lime soap, and added to it an equal weight of water and 40 per cent. of olive oil; then heated the mixture for three hours in a Papin's digester, at a temperature of about 320° Fahr. The water floating over the soap was evaporated, and left behind glycerine. The soapy mass, boiled with water which contained a little muriatic acid, afforded only fatty acids which were completely soluble in alcohol and alkalis. In short, complete saponification of the oil had taken place. Pelouze repeated this experiment with soda soap, in the place of lime soap, and obtained the same result. From these experiments Pelouze considers that water at the temperature of 320° Fahr. decomposes neutral soaps into an acid and a basic soap, and that the latter acts on a fresh quantity of fat as a free alkali.

Phosphate of Iron in Human Bones.—Nikles has described two strongly-coloured blue-green bones (the cubitus and the radius of a female skeleton), which he found in the burial-ground at Eumont. The bones were coloured through their entire mass. Nikles found that this colour was due to the presence of phosphate of iron which existed in a crystalline form in the bones, and considers that the existence of this salt was due to the circumstance of the bones lying in ground impregnated with ferruginous water, which had decomposed their phosphate of lime.

New Method of forming Ether.—When dry oxide of silver is treated with an equivalent quantity of iodide of ethyl, a reaction at once ensues, and there results iodide of silver and ether. This reaction is best conducted in a sealed glass globe which dips in cold water. Without this precaution the globe breaks, from the violent evolution of heat. In the cold, this double decomposition proceeds so slowly, that from one to two days is required to convert the whole of the iodide of ethyl into ether. The ether separated by distillation in a water bath should be again treated with a small quantity of oxide of silver, to remove the last trace of iodide of ethyl.

The same reaction takes place with iodide of methyl and oxide of silver.

New Process for Estimating Carbon.—Upon the discovery of Rogers that finely-pulverized graphite, and even the diamond itself, are converted into carbonic acid by treatment with bi-chromate of potash and sulphuric acid, Brunner has based a new process for the estimation of carbon in organic and other compounds. A series of investigations which the author has conducted shows that by the application of a sufficient excess of bi-chromate of potash, the whole of the carbon is always converted into carbonic acid. Thus, 3 grm. of wood shavings were entirely converted by heating with 7 grm. of bichromate of potash, 10 cubic cent. of sulphuric acid and 10 cubic cent. of water. Salicine and cane sugar require ten times their weight of bi-chromate of potash for the same purpose. Charcoal, mineral coal, coke, lamp-black, starch, and resin, require about twenty times their weight of bi-chromate of potash.

The carbon of iron may also be estimated in the same manner, if care be taken to have an excess of chromic acid, to prevent, by the solution of the iron, an escape of hydrogen. Still, the estimation of the carbon of the iron requires two operations. In the first, only the chemically combined carbon is oxidized simultaneously with the solution of the iron. In the second, the admixed graphite, which remains untouched in the first operation, is oxidized by a concentrated mixture of bichromate of potash and sulphuric acid.

This method may also be applied to the analysis of gunpowder. After the gunpowder has been washed with warm water to remove the saltpetre, and the insoluble residue dried at 212° , about three or four grm. is taken for the estimation of the sulphur, and about the same quantity for the determination of the charcoal. The sulphur is converted into sulphuric acid by heating to redness in a platinum crucible the above quantity with one grm. of carbonate of soda, two grm. of nitre, and ten grm. of oxide of copper. The resulting mass is treated with water, and the solution saturated with muriatic acid; then the sulphuric acid is precipitated with chloride of barium. The carbon is estimated in the manner already described. With regard to the absorption of the carbonic acid, the author does not employ the ordinary potash apparatus, but a tarred glass tube filled with lime, previously saturated with a solution of potash, in which the carbonic acid is dried by means of pumice stone, impregnated with sulphuric acid.

Uranium.—This metal, which previously only known as a black powder or in the form of small scales, Peligot has recently obtained in a reguline form, by heating the green chloride of uranium with sodium, in a porcelain crucible to a white heat. The uranium thus prepared is of the colour of iron or nickel, to a certain extent malleable, hard, but less so than steel, tarnishes yellowish in the air, burns rapidly when heated to redness, and becomes covered with a voluminous black oxide. Its specific gravity is $18\cdot4$, thus nearly as high as gold.

Preparation of Pure Caustic Lime.—As the ordinary lime is constantly contaminated with magnesia, iron, &c., it is very desirable to be able to prepare pure lime from marble. It is, however, well known, that this is a very difficult operation on a small scale. To remove this difficulty, Borsarelli recommends that a crucible, having a hole one inch broad at its bottom should be employed, which, when filled with pieces of marble, and heated strongly for about an hour and a half in a reverberatory furnace, entirely converts the marble into a caustic condition.

Antidote to Strychnine.—Dr. Pindell states that fat has the property of preventing the poisonous action of strychnine. He administered to dogs eleven times strychnine alone, and nine times that substance mixed with fat. In the former cases all the dogs died; in the latter, although the doses were larger, the dogs remained unhurt.

This marvellous statement, of course, requires corroboration.

A new Alloy resembling Gold.—For some time a new alloy has been employed in Paris for various purposes which resembles gold in the highest degree. It consists, according to an analysis made at the Royal Industrial Institution of Berlin, of ninety parts of copper and ten parts of zinc.

The Quantitative Estimation of Chlorine.—Wicke found that when one ounce of ordinary chlorine-water was mixed with eight grains of hyposulphite of soda in solution, the vessel closed and warmed for a few minutes, that the odour of chlorine disappeared. He, therefore, proposes to employ this agent for the estimation of free chlorine. To obtain accurate results after the odour has disappeared, he adds a few drops of muriatic acid to the liquid, heats to the boiling point to decompose the excess of hyposulphite of soda, filters, and then determines the sulphuric acid in the filtrate as sulphate of baryta. Each equivalent of sulphuric acid corresponds to two equivalents of chlorine. He finds this method gives very accurate results.

The Use of Glycerine for the Preservation of Organic Bodies.—Luton states that animal and vegetable substances may be kept for a long period perfectly free from decomposition when immersed in glycerine. He also finds that it is a good antiseptic agent for injecting dead bodies.

The Action of the Compounds of Copper with Fatty Acids on the Organism.—Langenbeck and Städeler have instituted a series of investigations upon dogs, to ascertain the poisonous action of the above compounds, and obtained the following results.

A solution prepared by moderately heating

finely pulverized oxide of copper with olive oil, which contained .03 grm. of oxide of copper in the ounce, was given in doses of two ounces at once, and also stearate of copper up to 1 grm. doses, and the animal did not die, but suffered from vomiting and purging. When the dog was killed, its organs were normal, and analysis showed the existence of .00545 grm. of oxide of copper in the liver, .0034 grm. in the gall and gall-bladder, .0012 grm. in the kidneys, .0022 grm. in the urine, and none in the heart and spleen. Doses of 6 to 7½ grm. of copper soap, obtained by decomposing oil soap with sulphate of copper, which contained about .6 grm. of oxide of copper, likewise did not kill the dogs, but acted as already described. .5 grm. doses of acetate of copper, and butyrate of copper, given in two ounces of oil, acted extremely poisonous when the gullet was tied.

As the copper salts of the fatty acids with high atomic weights possess little poisonous properties, the authors recommend soap as a good antidote in cases of poisoning with copper salts. Nevertheless, in cases of poisoning with acetate of copper, they are worthless, at least when the gullet is tied; but still they consider that, even with this poison, these salts are the best antidotes when vomiting is permitted.

Medical Jurisprudence.

INQUESTS AND MEDICAL TRIALS.

POISONING BY ANTIMONY.

A TRIAL, at which a woman was arraigned for the wilful murder of her husband, by poisoning him with antimony, took place at the South Lancashire assizes, before Mr. Justice Willes, on the 22nd instant. The circumstances, as narrated in the address of Mr. Overend, Q.C., for the prosecution, were these:—

The deceased, Daniel M'Mullen, was an operative cotton-spinner, and also a shopkeeper, residing in Blackburn-street, Moor-lane, Bolton, and the prisoner was his widow. The deceased was about forty-three years of age. He was a man of spare habit of body, not strong. He had outbreaks of drinking, which lasted two or three days, once every two or three months; but, except on these occasions, he was temperate. The last occasion was on Saturday, the 7th of June, and he continued drinking until the 11th, and from then until Saturday the 21st of June, he was perfectly well, and attending to his shop. On that day he felt so uncomfortable with pain about the stomach that he went to bed about nine o'clock. He remained in bed during the whole of that Saturday night, and on the Sunday morning he complained of continued pain, and of a burning sensation about the stomach, and in consequence of this the prisoner sent for Mr. Dorrian, a medical gentleman. Mr. Dorrian treated the deceased as if he were

suffering from indigestion or dyspepsia, and did not consider his malady at all urgent, having seen him suffering from similar symptoms on previous occasions. He prescribed for the deceased, but instead of the malady yielding to the treatment, M'Mullen became gradually worse and worse, and he complained always of burning at the pit of the stomach, of sickness, constant inclination to vomit, and, in addition, burning heat and great prostration of strength. During the whole of that week he gradually got worse. On Wednesday, July 2nd, and on the Tuesday and the Friday, the maid-servant made some communication to a Mr. Taggart, assistant to Mr. Dorrian, by reason of which it was deemed desirable to call in the assistance of another medical gentlemen, and accordingly Dr. Chadwick was called in on Saturday, June 28th. After consultation, the medical practitioners thought it desirable that the wife and maid-servant should prepare no food for the deceased, and accordingly instructions were given to that effect; and from the Saturday night to the time of his death neither the wife nor the maid-servant could have given him any food, because a nurse was called into the house, and was attending closely to the deceased constantly from Saturday to Wednesday morning. Up to the very last the same symptoms were manifested, and ultimately he died from pure exhaustion.

The evidence by which the prosecution was sustained was given by the following witnesses:—

MARY ANN HUTTON, a female servant in the employ of the deceased, deposed, that on the 7th of June a quarrel took place between her master and mistress, both of whom were intoxicated, and that she undressed her mistress, at which time, as she adds, I took her pocket and searched it, and found a white paper, but rather dirty, with a powder in it. It was a square paper; I opened it, and found a white paper; I took half of it, and put it in my pocket in a paper, and put the other half back into mistress's pocket. Mistress was very drunk at the time, and did not know what I was doing. On Sunday night I gave the powder to Tereza Fitzgerald; and in a fortnight after I got it again. I took it, and gave it to Elizabeth Hilton to show it to Mr. Dorrian. This was on a Monday; I got it back from Elizabeth Hilton the following day. I took it to Mr. Dorrian, and he not being in, I gave it to his assistant. I had seen mistress with a powder three months before master's death. She took it out of her pocket, and put some in a basin, and then filled it with broth for master. He supped the broth. He was not drinking then. Whether he had been drinking just before I cannot remember. I also saw her one day put some powder in some gravy, when we had roast beef for dinner. He was called to his dinner, and after he had taken it he became sick. I have also seen her put it in his butter-milk and treacle, for his porridge. He took them to his meals. He was sick after taking the porridge. Whether he had been drinking when this was done I cannot say. Another day she put it into his dinner; but they had had some words, and master went out and would not have his dinner. It was ready for him, and mistress had put his

upon a plate. She told me not to mix it with what was on the dish. It was thrown out. I took care that no one ate it. The next time I saw her with powder was on the Wednesday before master's death, when I saw her put some powder into a glass gill cup. She then put some water to it from the tap; she put this into the medicine bottle, and shook all up together. She then poured some out into the glass cup, and took it up stairs, where my master was lying ill in bed. The medicine had come from Mr. Dorrian. I saw mistress put the powder on the plate five or six weeks before my master died. I saw mistress on the Friday before he died put some powder into a tea-cup, upon which she put sugar and milk, and then filled it with tea. She did not stir it. She said, "Marian, take this up to master." I took it up stairs, but before I gave it him, I put half of it into a bottle, and put it into my pocket. What I got on the Tuesday, I gave to Mr. Taggart, Mr. Dorrian's assistant.

By the JUDGE.—By whose directions did you take part of the powder?—Mr. Dorrian's.

In cross examination this witness stated, "I got instruction from Mr. Dorrian to keep a portion of what was given to my master."

The evidence of Tereza Fitzgerald, Mary Cummins, and other witnesses who had had some of the powder spoken of by the last witness in their possession, is unimportant. They appeared to have endeavoured to ascertain from various druggists of what the powder consisted, but without success.

Mr. WM. TAGGART.—I am assistant to Mr. Dorrian, surgeon, of Bolton. I received a powder on the Tuesday from Mary Ann Hutton, and showed it to Mr. Dorrian. On the Friday evening I brought a small jug to Mr. Dorrian. I got it from Hutton. Mr. Dorrian at the same time got a bottle, into which the contents of the jug were put. I have been assistant to Mr. Dorrian for two years. I have never been asked for "quietness" at Mr. Dorrian's. I conducted a druggist's shop for Mr. Stewart, and was asked there for it two or three times. It is pretty commonly sold there to create sickness. It is 'tartarized antimony. I have heard of it being given to drunken persons to make them leave off drinking. I was present when Mr. Dorrian said to the prisoner that there was a person who would swear that she had put some powder into his medicine and food. She said she had not given him antimony, but that she had given him "quietness." She said she had not given him any for a week before; but she had given him "quietness" to take him off drinking, and that she got it from Mr. Simpson's. She volunteered also to get another powder of the same kind from Mr. Simpson's, and in a day or two after she fulfilled her promise by getting one, and which was afterwards analysed. "Quietness" is generally given to persons drunk, not to prevent their getting drunk.

Mr. JAMES DORRIAN, surgeon.—I was acquainted with the deceased four or five years, and occasionally attended him. He was about forty-four years old, and of spare habit of body. He called

at my surgery in April, and complained of vomiting his food, and that he had burning pain when he vomited. I prescribed for indigestion. In May he called again. His complaint was the same, and he said when he threw up he was easier. I visited him at his own house about the 21st of June. He complained of the same symptoms. He did not say that he had been drinking. He was getting thinner. I prescribed for him. Except on Tuesday I saw him daily. The medicine I sent did him no good. He still complained of being sick. On the 28th I saw him early. He said that he took some tea, which made him sick, and that he had a burning pain, and a feeling as if hundreds of pins were pricking him. On Saturday he was worse in every way; then, for the first time, he complained of being thirsty. I felt alarmed, and proposed that Dr. Chadwick should be called in. They said they were satisfied with me, and Mrs. M'Mullen said they would wait two or three days longer. On the 24th of June my assistant showed me a paper containing a white powder. On Saturday morning I saw it again before he took it to Mr. Watson. I received a bottle from Hutton on Friday night. I also received a small mug, which she said contained some medicine. The next day Taggart took them to Mr. Watson. I did not prescribe anything for the deceased containing antimony. I sent for Dr. Chadwick, and he saw the deceased with me. We did not agree upon anything, but I determined to put him under the care of a nurse. I sent one, and gave directions that nothing should be given to him but what I sent from my own house. On Sunday morning he appeared better, but in the evening was worse. Late at night he was much worse, and I sent again for Dr. Chadwick. The man coughed and expectorated a little, and complained of pain in the chest. On Monday there was a little sallowness on the skin. On Tuesday this sallowness was well developed. On that day symptoms of approaching dissolution became manifest. On Wednesday morning he became insensible, and died at two o'clock. For two days his respiration was very much hurried. He had no diarrhoea on any day during his sickness.

We have not space for the portion of Mr. Dorrian's evidence which immediately follows. It chiefly related to conversations with the prisoner, Betsy M'Mullen, who acknowledged that she had given her husband something intended to cure him of drunkenness, but professed to be ignorant that it contained antimony. Mr. Dorrian continued—

The symptoms were consistent with death from antimony. A post-mortem examination of the body took place the same day. Dr. Chadwick and his assistant, and Mr. Snape, were present. The body was emaciated; there were extensive adhesions of the pleura; the lungs were natural in weight and size, but the left of the lower lobe was congested; the stomach was inflamed, particularly next the heart; the duodenum was inflamed, as were all the smaller intestines; the upper part of the rectum contained hardened

faces; the right kidney was congested; the bladder was inflamed; the rest of the body was in a healthy condition; the liver was healthy, but congested. As to the appearance of a body after death by antimony, the stomach and smaller intestines are inflamed; the lungs will show appearances of either inflammation or congestion; in those who have died suddenly, the brain and its membranes are congested. In case of small doses I should not expect the brain to be affected; the stomach and throat would be inflamed. Mr. Harris took the jars, containing a portion of the intestines, the bladder, the liver, and a part of the lungs; also a portion of the urine. On Saturday night, on Monday, and on Tuesday, a portion of the deceased's urine was taken, and conveyed to Mr. Watson.

Cross-examined by Mr. Serjeant WILKINS.—If I had heard nothing of this powder, I should have known that it was not dyspepsia towards the end. Drunkenness might cause dyspepsia; but then there was the circumstance of his being better at times, and then worse again. The sallowness I perceived well developed on Tuesday. The symptoms are not consistent with gastro-enteritis. In that case there is tenderness over the bowels. Any irritant substance would produce inflammation. In this case there was irritant sickness, sometimes twice a day, according to his statement. Delirium is frequently the result of fever; gastro-enteritis is always attended by delirium. Jaundice in this case I consider consistent with death from antimony. If there had been disease of the liver, this would not have been so. The liver was covered with bile. The bile was absorbed into the system; and this I consider hastened death. I treated him as suffering from antimony from the Saturday when Dr. Chadwick was called in. His medicine did not produce the slightest curative effect. He said he felt easier after vomiting, and that I should expect after taking antimony. I think one grain of tartarized antimony may be given with safety. Larger doses are often given, but I most usually give a quarter of a grain. The body felt quite cold when the post-mortem examination took place. The limbs were not rigid. The abdomen, the day before death, was a little enlarged.

Re-examined by Mr. OVEREND.—In this case there was no tenderness of the abdomen as in gastro-enteritis. In a case of that kind I should not expect jaundice. The effect of antimony would depend on the quantity given, and the manner of administration. I should expect the kidneys to be affected from antimony. Taking all the symptoms, I think they were not consistent with natural disease. Any irritant would produce the same effect as antimony. A dose of antimony which was dangerous to one person would not be dangerous to another. A dose given a few days I should expect to find in the liver and in the urine.

By Mr. Serjeant WILKINS.—I am not prepared to say how long antimony may be found in the system. I believe it passes off by the urine. It may enter the bones, and be found there for months.

SAMUEL TAYLOR CHADWICK, M.D., examined by

Mr. OVEREND.—I was called in in M'Mullen's case, in consultation with Mr. Dorrian, on June 28th. I found the deceased emaciated—labouring under great prostration. He complained of restlessness; had no pain in his head, and was not delirious. He complained of pain about the region of the stomach. Was very anxious to obtain sleep. The respiration was rather hurried, the heart's action feeble, the pulse small and weak, the tongue coated but moist, and the bowels constipated. I was informed by Mr. Dorrian that he had been suffering from sickness after taking food. His skin was dry, not very hot. The pain of the stomach was severe under pressure, but he could bear a considerable amount on the abdomen. At midnight on Sunday I saw the deceased again. He was worse; his pulse was rapid, his breathing more hurried, the tongue becoming dry, and the pain of the stomach had extended to his breast. I saw him on Monday and Tuesday. He was then much worse. Jaundice had set in. He still complained of restlessness and want of sleep, and also of thirst. The bowels continued torpid, and on Monday we prescribed castor oil. Cramp and purging, and constriction about the fauces, were wanting in the symptoms of M'Mullen; and I should not have thought it a case of poisoning by antimony if it had not been for the production of the powder. The symptoms were similar to a case of gastro-enteritis. I thought it a case of gastric fever. I should not invariably expect the liver to be in the state it was in from gastro-enteritis. I was present at the post-mortem examination. (Dr. Chadwick then described the condition of the body, as detailed by Mr. Dorrian.) There was no doubt that the deceased died from inflammation of the mucous membrane of the stomach and intestines. The effects might be produced by antimony, but all the effects of antimony not being present in the case, I could not say that he died from it. There might have been some amount of inflammation in the stomach, and antimony being given would accelerate death.

By Mr. Serjeant WILKINS.—It is my opinion that this man died from inflammation of the intestines and from jaundice. The bile being re-absorbed, became a blood poison. After the post-mortem examination, I did not think it a case of primary or idiopathic gastro-enteritis. The use of alcohol would assist in bringing on inflammation. I have heard of "quietness," but always thought it was a syrup with laudanum, given to children. I have never heard of a powder of this kind before this case, but I now find that in Bolton it is frequently given by wives to their husbands. The prisoner told me she had given "quietness" to her husband, and that his mother recommended it to her. I should not expect jaundice to be produced by antimony.

By Mr. OVEREND.—In gastro-enteritis I should not expect to find spots on the stomach, as in this case. It is in consequence of the absence of purging, cramps, &c., that I conclude that death was not caused by antimony; otherwise the symptoms were consistent with poisoning by antimony.

MR. HENRY HOUGH WATSON, analytical chemist,

Bolton.—On the 28th of June I received from William Taggart, assistant to Mr. Dorrian, a small package of white powder, and I also received from him two bottles, one of which was said to contain medicine, and the other tea. On the 1st of July, I received from Mr. Dorrian three bottles and a powder. On the 2nd of July, I got from Mr. Harris seven bottles, containing fluids from the body, and some jars, containing viscera. One of these bottles was labelled urine, and those I received from Mr. Dorrian were also represented as containing urine. I tested the powder from Mr. Taggart. I ascertained its weight to be one grain and six-tenths. That powder was tartarized antimony, either entirely or chiefly. The bottle said to contain medicine I found to contain 120 grain measures, or two drachms of liquid. I tested it for antimony, and found that it contained antimony equal to not less than one grain of tartarized antimony per ounce. The quantity I operated upon in this experiment was twenty grain measures. I tested the tea, and found it to contain antimony, but not more than one-fourth of what was in the medicine. The quantity of tea I received was 660 grain measures. I tested the powder delivered by Mr. Dorrian on the 1st of July, and found it to contain tartarized antimony, but not nearly so much as that received from Mr. Taggart. The powder from Mr. Dorrian contained cream of tartar, in very large proportion. I next tested the three liquids brought by Mr. Dorrian on the 1st of July: these were said to be urine, and I found strong traces of antimony in them. I next tested the fluids taken from the body after death. One fluid was urine, and I found, antimony in it. Another was labelled, "fluid from the pericardium;" another, "effusion in the peritoneum;" another, "contents of the stomach;" another, "blood from the right side of the heart;" another, "blood from the liver;" and the other, "blood from the brain." There was scarcely any indication of antimony in any of the fluids except the urine. I found the liver strongly contaminated with antimony. I found antimony in one of the kidneys, which I tested; I only tested one of the kidneys; and I also detected antimony in the spleen, more strongly than in the kidney. I detected antimony strongly in the scybala. I found none in the substance of the stomach, and none in the substance of the colon. In neither the heart, lungs, nor substance of the rectum did I detect more than an exceedingly slight indication.

Sergeant WILKINS did not cross-examine Mr. Watson, and he said he would not dispute that antimony had been found in some parts of the body.

Dr. J. B. NEVINS.—I am a physician living in Liverpool. I have heard the evidence to-day, and attribute the death of M'Mullen to the administration of antimony in long-continued doses. I come to that particular conclusion, because I have experimented for a long time on animals. Vomiting has been absent in every case, and in that respect is different from the symptoms in M'Mul-

len's case. I have found diarrhoea in some, but absent in more. I have not seen cramps in any of the cases I have experimented upon. I never saw a fatal case of gastro-enteritis unless accompanied by typhoid fever, or caused by an irritant substance. In the rabbits upon which I have experimented, the liver has been congested in every case in which the antimony has been administered three or four days. Generally the affection of the kidneys was very slight. In some cases there was inflammation of the stomach, and in two cases also ulceration. As a continuous dose, repeated several times a day for weeks, I should say a grain per day is dangerous. The tendency of it is to accumulate in the liver, but it does not suddenly produce dangerous effects.

By Mr. Serjeant WILKINS.—I never met in my own practice with a case of poisoning by antimony. I do not know that what is poison for rabbits may be food for man. I have experimented on rabbits for three weeks. I made my experiments for this trial. I never saw a rabbit vomiting in my life, and I selected the rabbits to experiment on upon that account.

Dr. CAMERON.—I am a physician to the Liverpool Southern and Toxteth Hospital, and also a lecturer on Medical Jurisprudence. I attribute the death of M'Mullen to the administration of small and repeated doses of antimony. I have heard of the absence of spasm and diarrhoea, but that does not change my opinion. I should not expect diarrhoea when antimony is administered in small doses. I attribute the absence of spasms and diarrhoea to the smallness of the dose. I have not observed myself a case of poisoning by antimony.

By Mr. Serjeant WILKINS.—Cases of poisoning by antimony are very unfrequent. We have no proof as to what would be a poisonous dose. I have known four grains administered, and the patient recover. The poisonous effects of antimony are soon acted upon by antidotes. Any substance containing tannin and gallic acid would act as an antidote.

By Mr. OVEREND.—Antimony is discharged by the urine. If it has got into the system, it is difficult to meet.

JOSEPH HARDMAN, assistant to Mr. Simpson, druggist and grocer, Bolton.—I have seen the prisoner at Mr. Simpson's shop, and have served her with groceries. I remember selling her an emetic powder on the 1st of July. I do not remember selling her any other.

By Mr. Serjeant WILKINS.—I have not to my knowledge sold her powders from time to time. I cannot tell how many we sell per week. I have not known six sold in a week. We do not sell them without cautioning the party purchasing. We have kept them made up—four or six at a time. They contain antimony. They say they are for women to give to their husbands. I have heard the women say they were for their husbands. I never heard them say what they were for. I did not know that tartarized antimony was a poison. I am eighteen years old. I went to

Mr. Simpson from school. Mr. Simpson made up the powders. When the prisoner came on the 1st of July she asked for a quietness powder. It was an article as well known as any other. The caution we gave was that only one-fifth was to be taken at a time. I have heard that they were intended for drunken husbands.

Mr. J. R. SIMPSON.—I know Betsy M'Mullen. I have seen her at my shop. I have not sold her any "quietness" that I know of. This I swear. We sell a powder, but not under that name. We tell our customers to divide it into four or five doses, if they ask how to use it. They contain four grains of antimony.

By Serjeant WILKINS.—Most of the druggists sell them. They are used by persons working in mills, to clear their stomachs. They are generally sold to women; I never sold them to a man.

Mr. JOHN THORNTON, agent in Bolton for the Prince of Wales Insurance Company.—On the 29th of January, 1855, the deceased effected a policy in our office for £100, on the joint lives of himself and wife. I solicited him. He had paid six quarterly payments of £1 11s. per quarter.

The remaining evidence was comparatively unimportant. On the ensuing day, Serjeant Wilkins addressed the jury for the defence, the main tenor of which was that, although he could not deny antimony had been found in the body, it had been administered without a wilful intention to cause death. In the course of his observations, he remarked "that it was really shocking to contemplate a state of things which permitted ignorant persons to dispose of poisons like antimony, whilst the legislature stood by regardless of the dreadful consequences.... The jury would find Simpson stating that he sold several of the powders called 'quietness' every week, that he kept them made up in his shop as a regular medicine—nay, more, that so little care did he take that he left the vending of the medicine to a boy who comes into the shop from the school-room without knowing what Epsom salts are, except from taking them. The boy said when these powders were sold they always gave a caution to the purchasers, and that each powder contained *five grains of tartarized antimony*; but in this respect he was immediately contradicted by his master, who in his evidence said the powders contained *only four grains* of the tartarized antimony and fifteen grains of cream of tartar. When, however, the jury found how carelessly things were done, he thought they would have some doubt as to the statement."

The learned judge, in summing up, remarked to the jury, that "he exceedingly lamented that a practice should exist such as that spoken of at Bolton—viz., women giving doses to their husbands with the intention of curing them of the habit of drinking, by making them sick. Such a practice was most reprehensible." After referring to the evidence of the medical men, and to the extreme ignorance of persons dispensing medicines in some druggist's shops, as, for instance, the boy in this case coming from school to dispense poisons at Mr. Simpson's shop, the learned judge said, in conclusion, that if

the jury were of opinion that the prisoner did not administer the antimony, then it would be their duty to acquit her. If, on the other hand, they were of opinion that she did administer it, then they must consider whether or not she gave it him with an evil motive—with a full knowledge of its effects. If she gave it him in ignorance of the effect it was likely to produce, the offence would be that of manslaughter.

The jury, after a deliberation of two hours and a half, returned a verdict of Manslaughter by Betsy M'Mullen. The judge deferred passing sentence until Monday last, but he remarked—"In reference to the sale of the drug called 'quietness,' which had, no doubt, caused the poor man's death, it was well that it should be known, that persons who, like Mr. Simpson, sold such things, were equally liable to a charge of manslaughter with those who administered them."

On Monday, Mr. Justice Willes proceeded to pass sentence. His Lordship said, that in consequence of the extensive prevalence in Bolton, among a certain class of women, of the practice of giving "quietness," it was necessary to make a signal example, and the sentence of the court was, that the prisoner be transported for life.

POISONING WITH ARSENIC; RECOVERY.

At the same Assizes JANE NEWTON was indicted for having administered to her husband *half an ounce* of white arsenic, with intent to murder him. The chief evidence was the following:

HENRY NEWTON, husband of the accused said—I live in Cockspur-street, Ashton-under-line, and am a blacksmith. On Sunday morning the 4th of May, when I got up I was perfectly well. Between eight and nine that morning I had my breakfast, which was in a tin, and consisted of stew; and the prisoner gave it me. My two children had some stew; one of them had it in a saucer, and the other out of a small gill-pot. The prisoner took some too, out of a pint jug. I ate it down-stairs. I was not in the house when the stew was brought in. The prisoner called me down to breakfast. After I had been eating for five minutes, I felt a burning pain about my stomach and throat. I told my wife, but she made no answer. What I had left I then divided between my two children. I gave to each half a teacupful. They ate some of it, and I went into the back yard and began to vomit close to the hencoop. I was vomiting violently about five minutes, and then went into the house and lay down on the bed for about half an hour, when I again vomited violently. When I had been down-stairs about an hour, the prisoner asked me if she might go for a doctor for me, and I told her yes. She went to Dr. Meakin, Dr. Horner, and Dr. Glover. She, however, returned without them. A fourth time she went out for another medical man, but returned with the same excuse as before. She then went for Dr. Kitson, who came shortly after she returned. I described to him how I felt; and while he was there I vomited. He sent me some medicine. Between five and six o'clock on

the Monday morning the prisoner brought me up some porridge, and I ate two or three spoonfuls of it. I soon felt a burning at the stomach again; and I vomited throughout that day. On the afternoon of Monday, Mr. Hunt came to see me, and he sent me some medicine. The vomiting continued violently until Monday night, and ceased altogether on the evening of Wednesday. On the forenoon of Monday the prisoner told me that the chickens in the yard were all ill. On the following morning, my brother Charles came, and said to the prisoner, "Jane, you've given our Henry a dose." She cried, and said she had not. Immediately she said she had bought a quarter of a pound of arsenic (another witness stated that she said "mercury,") at Waterhouse's, to kill bugs with; and my brother told her to go out of the house, or she would be getting locked up. She took her shawl and went out. I had never known of her buying arsenic before she told us on that day. She had not cleaned the flocks.

THOMAS MALEY examined.—The prisoner is my aunt. On the morning of Sunday, the 4th of May last, I was at Henry Newton's house, and while I was there the prisoner brought some stew in, in a quart jug, which she placed on the table. I saw her reach three pots out of the cupboard. She then measured out the stew into them, and afterward's stirred Henry's mess up with a spoon, but she did not stir up the others. She then shouted to Henry to come down to breakfast, and he did come down, and partook of the stew. He had eaten about a gill of it when he said the stew made him feel very queer—that it came up again. The remaining portion of the stew he divided between the children, and then he went into the back yard, where I heard him vomiting. The prisoner immediately took the stew which he had given the children and threw it into the ash-place under the grate, saying, "It has made one poorly, I must not have you all three down." The children had eaten a teaspoonful or two of the stew when the prisoner took it from them. The prisoner ate some of the stew out of the quart jug in which she had brought it into the house. The little girl went into the back kitchen and vomited. There was no one in the house at the time she put the stew into the pots but herself, her husband, the two children, and myself. When the stew had been emptied out of the three pots into the ash-heap, the prisoner took the pots into the back kitchen and washed them out, but she did not cleanse the quart jug in which the stew had been purchased.

The prevarications of the prisoner had been remarkable. She had stated that she had obtained the stew at several different places successively, which statements proved to be untrue. Neither did it appear that fleas had been intolerably troublesome to the husband, so as to render it necessary to use any material to expel them from the bedding, and which an analysis of the latter proved that she had not used for that purpose. But that she did purchase arsenic, in a manner openly in contravention of the Act in force to restrict its sale, was proved by the following evidence:—

SARAH GRIMES examined.—I live in Factory-yard, Ashton-under-Line. On Friday, the 2nd of May, prisoner came to my house about three o'clock in the afternoon, and said she had been busy among the flocks all day, destroying fleas. She said she had been thinking about some arsenic, and asked me if I would go with her to buy some. In the evening she sent a little girl to me. I went, and accompanied her to Waterhouse's druggist's shop. When the assistant came in she asked if he sold mercury, and he said "Yes," and she asked for a quarter of a pound. He began to weigh it, and asked what it was for; and she said "To kill fleas." Mr. Waterhouse came in, and asked the boy what he was weighing, and he said mercury, and Mr. Waterhouse said to prisoner, "Are you aware what this is for?" and she said, "Yes; I want it to mix amongst the flocks." He said, "You must be careful; it is very severe stuff;" and she said, "There is a person here has used it." We left the shop together.

PETER REDDIN examined.—I am an assistant of Mr. Waterhouse, chemist and druggist, Ashton-under-Line. I don't know either the prisoner or the last witness. I know Joseph Shaw, and remember him being in the shop when three females also came in for mercury to kill vermin. I supplied them with arsenic—*mercury and arsenic are the same thing*. Mr. Waterhouse was there, and he received the money.

By Mr. SOWLER.—I don't know who it was came for arsenic.

By the JUDGE.—*A teaspoonful of arsenic would kill a person. I am seventeen years of age.*

It was proved, that besides some fowls belonging to the husband of the prisoner, three hens in an adjoining yard, belonging to a man named Eilson, had died, and had been given to the constable. Evidence was also given that the prisoner had pawned her husband's clothes on the 5th of May, and the Secretary of the Foresters' Club proved that on Newton's death, his wife would be entitled to £8 from the club.

MR. JAMES KITSON, surgeon, Ashton, said—On the afternoon of Sunday, the 4th of May, I was called on to visit Henry Newton. I found him vomiting. He complained of sickness. The fluid he had vomited was yellowish. Next day I visited him again, and he complained of a pain across the stomach. I prescribed a blue pill, camomile pill, and gruel for him.

MR. HUNT, surgeon, Ashton, said—I was called on to attend the prosecutor on the 5th of May. I found him complaining of pain in the chest, throat, and stomach. His tongue was dry and brown; pulse quick; skin very hot. Newton told me he had eaten some stew in the morning, and that directly after eating it he felt sick.

MR. STONE, analytical chemist and professor of chemistry at the Chatham-street School of Medicine, Manchester, said—I examined the vomit handed to me by the police, and found that it contained two grains of arsenic. I examined the crops of the hen and chickens, and found arsenic there in a sufficient

quantity to cause death. Three or four grains would cause death to man.

HIS LORDSHIP.—What would a teaspoonful do!—Poison twenty or thirty people.

HIS LORDSHIP (to the jury).—You will remember that the druggist's boy said a teaspoonful would poison an adult.

The witness's examination continued.—I received some flocks, which I tested, but could not find any arsenic in them.

Cross-examined by Mr. SOWLER.—I only analysed part of the fluid brought to me in bottles; I should teach that arsenic would not be found in newly-made glass bottles; a film of arsenic might remain on an imperfectly blown bottle, supposing that arsenic were used in its manufacture.

After the speech of the counsel for the defence,

HIS LORDSHIP prefaced his summing up by saying that the questions for the jury to determine would be these: Was there poison in the stew which the prosecutor ate on the morning of the 4th of May? Was that poison put there by his wife intentionally and designedly, or was it put there through ignorance? If she intentionally and designedly put poison in the stew, there could be no question that the offence was committed for which she was charged. If they were not satisfied of this from the evidence, then they ought to say that the prisoner was not guilty; but if each of the steps in the proof was established by the evidence, then they ought to say she was guilty. His Lordship next directed the attention of the jury to the position in which the two parties stood at the time of this occurrence, and then proceeded to review the evidence at length.

The jury retired at twenty minutes to six, and at five minutes to six o'clock returned into court with a verdict of Not Guilty.

HIS LORDSHIP ordered the prisoner to be at once discharged.

The Foreman of the jury then said,—We wish to express to your Lordship our sense of the very reprehensible practice which exists of selling poisons indiscriminately.

HIS LORDSHIP said,—Gentlemen, you cannot feel more strongly than I do, to use your own language, the very reprehensible practice which exists of selling poisons, as has been proved in this case. It is really a practice which one would have expected to find in this country the last of any in the world; and that, in a country where human life is most valuable and the most protected, we should have these poison-shops selling these deadly poisons—arsenic, for instance—under a slang name, is truly monstrous! I am very much obliged to you for mentioning this matter, and I can only express the hope that those who have the power of altering the law will attend to your remarks.

leaving the higher considerations of these sciences, give a glance to the aids afforded by some kindred arts, when the hand of the medical man is forcibly stopped in its endeavour to relieve.

Amongst these aids, the artificial eye stands pre-eminent, for it restores to the patient, from whom we could not ward off a misfortune, his peace of mind, and his proper place amongst his fellow-creatures.

Manufacturers of artificial eyes of all countries competed at the Paris Exhibition, and it is but rare justice to say that Mr. Boissonneau carried off the first prize. The successful candidate took quite a scientific view of his subject, and arranged his collection in such a way that his principal methods were at once understood. This end was attained by grouping specimens carefully together, and adding to the latter very lucid letter-press explanations, both as regards shape and the nature of the material used. So perfect has now become the adaptation of the artificial eye, that it may almost be considered as a branch of ophthalmology, to which branch the author has given the name of "ocularistics."

It may not be uninteresting to inquire into the history of this art; it will be found that it was practised at a very early period. From trustworthy records it would appear that the first artificial eyes consisted of a metal shell, either painted or coarsely enamelled over, figuring the sclerotic and the iris, the absence of the cornea giving the fabric a very repulsive aspect.

It was a Dutchman who, in the seventeenth century, first attempted to model the eyes in enamel; and in combining the latter with glass he succeeded in imitating the transparent cornea. Such eyes were made in Paris, London, Venice, and Prague; but the greatest improvements were introduced by another Dutchman, named Demmenie, and his imitator, Francis Hazard, a Frenchman. They both died at the beginning of this century. But all these men copied each other, and produced very inferior articles, consisting of an oval shell, exactly like the half of a bird's egg; the eyes varied only in size and colour, the same piece being used both for the left and right side.

Such eyes may now be seen in the collections of medical museums, both in France and other countries. They gave the wearers much pain, produced a staring effect, and imparted to the face a repulsive aspect. When the surgeon had not originally contrived to lessen the globe considerably, an operation was indispensable, before the above-described artificial eye could be worn.

At last the time came when the manufactory of enamel was greatly improved; by close observation of Nature, the substance was modified and transformed in a hundred ways, and the artificial eyes were made to fit without the assistance of the surgeon's knife, by being moulded upon the remains of the sightless globe. By means of a hemispherical shape, they were made to adapt themselves upon bulbs of a large size, and the operative reduction of such bulbs thus became unnecessary.

ARTIFICIAL EYES AT THE PARIS EXHIBITION OF 1855.

We have from time to time pointed out how far this Exhibition has contributed to the advancement of medicine and surgery, and we may now,

The enamel was prevented from acting as a foreign body, the usual distressing irritation was avoided, and, by being made to cap exactly upon the globe of the lost eye, isochronism with the sound eye became established.

Mr. Boissonneau, as we learn by the verdict of the jury, has produced enamel which resists the action of damp, and is thus better calculated to imitate nature. He has introduced peculiar shapes and sections of the usual eye, to suit the occasional narrowing of the orbital cavity, and has devised an ingenious mathematical mode of individual fitting of the artificial eye to each particular case. He has also made the following improvements:—1. Proper notching of the nasal portion of the eye, with protection to the caruncula. 2. Reduction of size of the upper palpebral section, to which is added a shape of its internal extremity, which allows the artificial eye to be turned upwards by the mere action of the lids. Hence the eyes must be made expressly for the right or left side exclusively. 3. The inferior margin is waved in such a manner as to fit the conjunctival reflexion, and prevent oscillation. 4. Avoidance of surgical operations, by leaving notches to fit excrescences. 5. Processes which keep the artificial eye *in situ* in cases of synblepharon.

A hemispheric shape, fitting the ocular bulb, and precluding the necessity of removing the latter, allows of very admirable movements, and a complete return of harmony and symmetry to the face. The margins are, when necessary, made in a waving direction to meet the irregular line of the conjunctival fold, and pinching of the latter is prevented by the slightly raised rims of the artificial eye. Strabismus is forestalled in counteracting the wrong direction of the bulb, by a larger amount of sclerotic section. The usual rugosity left by that portion of the enamel which was last in contact with the holder is done away with, and replaced, by means of fusion, by a perfect polish. The curves of the concavity of the artificial eye are so managed that no wriggling on the bulb is possible, so that irritation and discomfort cannot exist. Irregular perforations or elevations are made in the artificial eye to correspond with hard tumours of the sclerotic. Where a portion of the cornea has remained transparent, a partial cavity is left in the centre of the artificial eye, which cavity gives to an empty space between a portion of the sound eye and artificial substitute. Hence a staphyloma of moderate size may be diminished by the compression of an artificial eye shaped in this peculiar manner. When the lids are wanting, enamel ones can be added to the artificial eyes. In narrowing of the orbital cavity and contraction of the lids, such eyes are made which, without exciting inflammation, will favour the enlargement of the orbit, and gently distend the puckered lids. Compression towards the angle of junction of the lids, in cases of large globes, is avoided by a peculiar kind of adaptation, where the close relation between the bulb and artificial eye is always kept in view. The artificial substitute need not in such cases be made large; it takes of its own accord a

horizontal direction in perfect equilibrium, the movements harmonizing with the sound eye, and the conjunctival cul de sac retaining its proper shape.

It is well known that with children, the loss of an eye causes an arrest of development, and leads to deficient facial symmetry. This unpleasant result can be avoided by making the child wear an artificial eye, the lower margin of which has a larger bend than usual. To avoid the accumulation of tears in the concave enamel shell, Mr. Boissonneau makes a notch about the centre of the lower rim, and thus allows the fluid to reach the punctum, the absorbent functions of which are thus called into action. Mr. Boissonneau has even succeeded in applying artificial eyes in cases of slight exophthalmia. It should be finally noticed, that the margins are so delicately rounded off, that no kind of cutting or irritation of the conjunctiva need be apprehended.

We have thus passed in review the various improvements effected by Mr. Boissonneau in this very interesting branch of ancillary surgery, as they have received the sanction of the independent jury appointed to award the prizes, and because it cannot be too extensively known in the medical profession that means exist of freeing persons who have lost an eye of all the misery and discomfort which always accompany such a misfortune.

News Items, Medical Facts, &c.

HEROIC CONDUCT OF A SURGEON.—We have great pleasure in announcing that the Royal Humane Society has just presented its honorary bronze medal to John L. Milton, Esq., M.R.C.S. It is accompanied by a vote of thanks, inscribed on parchment, for his praiseworthy and successful exertions in rescuing from drowning the child of a bargeman. It appears that the little girl fell into that part of the Medway Canal where the falls are very high, giving it much the appearance of a lock, when Mr. Milton, passing, was a witness to the anguish of the mother, who was imploring assistance for her child, and, without waiting to consider the danger he incurred, he plunged in and saved her, and with great difficulty himself.

POISONING BY CHLOROFORM.—The most extraordinary overdose of chloroform yet known was wilfully swallowed by a patient recently in London. The man drank about four ounces at one draught! Wild intoxication, followed by profound insensibility, ensued; but, after various relapses and accidents, he is now quite well!

REMARKABLE CASE.—Mrs. Julia Syles, wife of John Syles, of Blackstone, died on the 14th ult. of dropsy, from which she had suffered for five years. During that time she had been tapped upwards of one hundred and forty times, and more than three thousand pounds of water were extracted!

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No. 6.

A Course of Lectures
ON THE
THEORY AND PRACTICE
OF
OBSTETRICS.

By **W. TYLER SMITH, M.D.,**

PHYSICIAN-ACCOCUCHEUR TO ST. MARY'S HOSPITAL, AND LECTURER ON MIDWIFERY AND THE DISEASES OF WOMEN IN ST. MARY'S HOSPITAL MEDICAL SCHOOL.

LECTURE XXVII.

PELVIC PRESENTATIONS.

GENTLEMEN,—Having considered those presentations in which the cephalic extremity of the fœtus is situated inferiorly, we may naturally pass to those in which the pelvic extremity of the child holds the same position. It has been a matter of controversy whether pelvic presentations should be considered natural or preternatural. Whatever arguments have been urged on either side, however, the same detriment has not accrued to practice as from erroneous theoretical opinions with regard to the nature of face presentations, inasmuch as all have been agreed pretty nearly as to the time and manner of rendering assistance in these cases. Practical conclusions not having been deduced from the one or other view of the question, all interest in it vanishes, and we are left free to consider only that which is useful. It is by no means necessary to enter into detailed separate descriptions of the various forms of pelvic presentation; they are, in reality, but trifling varieties of the same order of labours, and differ very little except in some particulars of management; their mechanism is essentially the same, and the fundamental rules of treatment which apply to the one variety apply with equal force to the other. We may look upon the pelvic extremity of the fœtus as composed of certain

elements, which may present alone, or in certain combinations. The most complete variety is where the breech engages itself in the pelvis first; then the knees may present, or the feet, or a single foot or knee. A needless subdivision of breech presentations has been made by some authors, and the pelvis of the fœtus has been described as occupying almost every conceivable position at the brim of the maternal pelvis. The complexity thus given to the subject of the mechanism of pelvic labours was, however, first cleared away by the same careful observer to whom we are indebted for nearly all that we know, exactly, of the intra-pelvic movements of the fœtus. Nægelé reduced all pelvic presentations into two orders; in the first, the back of the child is toward the abdomen of the mother; in the second, the abdomen of the child is towards the mother's abdomen. These may be called respectively the dorso-anterior and the abdomino-anterior positions. In neither case, however, is the back of the fœtus situated quite anteriorly or posteriorly, but rather obliquely, so that one hip is more anterior than another. The dorso-anterior position is, according to the same authority, more frequent than the reverse presentation, in the proportion of three to one. Let us now examine the mechanism of pelvic labours, first premising that they ensue according to fixed laws, as cranial labours do, with only this difference, that deviations from the usual course are perhaps rather more frequent, and attended with less risk than when the head presents.

In dorso-anterior pelvic presentations, the relation of the fœtus to the maternal pelvis is, generally speaking, as follows: the transverse diameter of the child's hips occupies the left oblique diameter of the pelvis, its sacrum is directed towards the left acetabulum, its left trochanter towards the right acetabulum, and its right trochanter towards the left sacro-iliac synchondrosis. Upon examining per vaginam, as the breech is entering the superior strait of the pelvis, it will be found

that the os uteri is occupied by a double tumour, soft, but elastic; during the intermission of a pain, the several parts to which reference will be made, when speaking of the diagnosis, may be readily distinguished, and it will be found that the sulcus between each segment of the tumour is oblique, and situated more posteriorly than anteriorly; or, in other words, one buttock, the left, occupies the anterior and greater half of the mouth of the uterus. It will be observed, also, that this buttock, which is most anterior, also stands lowest in the pelvis, and is, in fact, the presenting part. As labour advances, and the hips descend, the left hip is still lowest in the pelvis, and steadily directed somewhat to the right: what now takes place is a matter of dispute. The great majority of obstetricians contend that a rotation analogous to the rotation of cranial labours takes place, that the left hip turns more and more forwards, until it comes to be nearly under the pubic arch, and that the hips and shoulders thus emerge from the pelvis, nearly in the antero-posterior diameter of its outlet. This statement is made confidently by persons of great and deserved repute, but M. Nægelé, nevertheless, flatly contradicts it, and makes it the subject of some pleasantry: his words are nearly as follows: "In its farther advance (the breech) into the pelvis, it is always found in an oblique direction, the hip directed forwards standing lowest. In this oblique position, with reference to its transverse and perpendicular diameters, it is forced through the inlet, the cavity, and the outlet of the pelvis; and in general none of these rotations occur, erroneously described in many manuals and compendia as appertaining to this species of labours. There are some, certainly, who, compass and skull in hand, measure the diameters of the bony pelvis, and then on the writing desk so turn and extract a mannikin, that the transverse diameter of the hips always passes in that direction, which, according to calculation on the bony pelvis, they account the largest." The truth, as usual, would appear to lie between the contending parties. That there is a slight rotation can hardly be doubted, but it is not so constant nor so well marked as the rotation of the cranium. There is not the same difference between the diameters of the breech of the fœtus as between the diameters of its head, and consequently there is not the same necessity for a movement of adaptation; we shall find, however, that the head obeys the same mechanical necessities in its transit, in pelvic labours, as when it presents at first. Supposing the breech now to have become entirely engaged in the cavity of the pelvis, the left hip will be found just within the vulva, and the right hip beginning to press down on the floor of the pelvis posteriorly, and somewhat to the left side. The left hip then becomes nearly fixed under the pubic arch, and a movement of flexion takes place analogous to the flexion of face and the extension of vertex labors; the right hip sweeps over the perinæum, the pelvis of the fœtus rotating, as it were, upon its antero-posterior diameter. As

soon as the right hip has escaped from the tight embrace of the perinæum, a movement onwards *en masse* takes place, the feet usually slip out, and presently the knees become disengaged; and the inferior half of the child's body is thus born. The abdomen of the fœtus is now turned towards the inner side of the right thigh, or, supposing the woman to be in the ordinary obstetric position, upwards. The rest of the body follows in the same manner, the shoulders entering the left and oblique diameter of the inlet. The manner in which the arms are born depends upon whether they remain folded upon the chest of the fœtus, or are displaced during the progress of labour. In the first instance they slip out as the thorax is expelled; in the latter they are extended upwards on each side of the head, or one may even become locked behind the head, and between it and the pubis; and serious inconvenience may arise from such an accident. If the arms remain extended by the side of the head as the latter passes through the pelvis, the difficulty of the case is of course enhanced. The left shoulder of the fœtus, like the first hip, becomes first engaged in the outlet of the pelvis, and the right shoulder distends and sweeps over the perinæum. During the whole progress of labour, the fetal head will in most cases remain flexed upon the chest. As the shoulders are about to emerge, the head enters the opposite oblique diameter of the pelvis to that which the hips and shoulders have occupied; thus the forehead is toward the right sacro-iliac synchondrosis, and the occiput is directed towards the left acetabulum. The occipito-frontal diameter of the fetal head is not, however, exactly that which comes into relation with the right oblique diameter of the pelvis, for the chin is depressed and the occiput is the highest point of the fœtus; it is the sub-occipito-frontal diameter which presents, and thus sufficient room is gained to allow the head to become easily engaged in the cavity of the pelvis, and to permit the face to be rotated

Fra. 114.



Pelvis presentation in the first dorso-anterior position.

FIG. 115.



Passage of the shoulders, and partial rotation of the thorax.

FIG. 116.



Descent of the head.

into the hollow of the sacrum. The under surface of the occiput now rests against the inner surface of the symphysis pubis, the mass of the face occupies the sacral concavity, and the chin may be felt some little way within the perinæum. In the further expulsion of the head the occiput is almost a fixed point, and the head rotates upon its transverse axis in such a manner that first the chin sweeps over the perinæum, then the face, the forehead, and the arch of the cranium; and finally, the bulkiest part of the head having been expelled, the rest is pushed out by the elasticity of the perinæum and the action of the vaginal muscular fibres.

In the second variety of dorso-anterior positions, the hips of the child occupy the right

oblique diameter of the brim of the pelvis; the right buttock presents, if it is a breech case, and occupies the greater and anterior segment of the os uteri; and the left buttock sweeps the perinæum. The right side of the fœtus is directed steadily somewhat to the left acetabulum, and its abdomen turns downwards, or towards the left thigh of the mother. The head enters the left oblique diameter of the pelvic inlet, the forehead being towards the left sacro-iliac synchondrosis; the face turns into the hollow of the sacrum, as in the first instance, and the whole progress of the case is, in fact, the converse of what happens in the first position; just as the second is the converse of the first vertex or face presentation.

Abdomino-anterior positions of the fœtus, with the breech or lower extremities presenting, are of two kinds. In the first and most frequent variety, the hips of the child occupy the right oblique diameter of the inlet, the left trochanter is towards the left acetabulum of the mother, the left hip presents and stands lowest in the pelvis from first to last, and the whole body, as far as the shoulders is expelled, looking forwards to the right. The head enters the left oblique diameter of the inlet of the pelvis, the occiput being towards the left sacro-iliac synchondrosis. As the head descends, in the pelvis, the occiput rotates forwards from left to right until at last the face is lodged in the hollow of the sacrum, just as it rotates in fourth vertex positions. Those parts of the fœtus which were already born may now be seen to rotate in a corresponding direction and degree to the intrapelvic rotation of the head; thus the anterior surface of the child's body, which at first looked forwards and to the right, now looks backwards and to the right, and the case then terminates exactly as the first sub-order of dorsal anterior positions.

The second variety of abdominal anterior positions is where the hips of the fœtus lie in the left oblique diameter of the inlet, the right trochanter being towards the right acetabulum. The right buttock is here the presenting part, and stands lowest in the pelvis. The head enters in the right oblique diameter of the inlet, with the occiput towards the right sacro-iliac synchondrosis, and undergoes the same kind of rotation as the preceding variety — that is to say, the occiput turns forwards and from right to left, and the face is thus thrown into the concavity of the sacrum. The anterior surface of the child's body, which was at first turned forwards and to the left, is at the same time rotated so as to look backwards and to the left. The mechanism of this variety is in fact the exact converse of the preceding.

There remain two anomalies in the mechanism of pelvic labours, which are very interesting; one of these relates to an unusual termination of cases in which the abdomen of the infant is anterior, and the other relates to the position and rotation of the foetal head. It sometimes happens, says Naëgél, in abdominal anterior positions where the fœtus is premature, small, or a twin, that the

abdomen, which was at first directed forwards and to the left, or forwards and to the right, is suddenly, and during a single pain, turned so completely round that the abdomen looks backwards and to the right, or backwards and to the left. It is difficult to account for such a singular revolution of the foetal body. The other anomaly alluded to is where the head, instead of being fixed upon the chest, is extended, the occiput being pressed down upon the nape of the neck. In such cases the vertex rotates backwards into the hollow of the sacrum, the under surface of the lower jaw is brought into relation with the symphysis pubis, and the head emerges in such a manner that, first, the occipital protuberance sweeps over the perinæum, then the arch of the cranium, and then the forehead and face. The foregoing account of the mechanism of pelvic labours applies in every essential particular to each variety. There are, however, one or two subsidiary differences depending upon whether the nates, knees, or feet present. When the breech presents, the birth of the body is slower, but the head follows more readily; when the knees descend, they sometimes create delay by becoming fixed against some point of the bony pelvis, more especially against the lower part of the sacrum; and when the feet present, the birth of the lower half of the body is comparatively rapid, while delay ensues in the passage of the shoulders and head. In labours where the breech or knees present, reliance may be placed upon the position of the presenting part, as an index of the actual position of the foetus; but when the feet present, it must be borne in mind that they are very mobile, and only affect a determinate position when the nates enter the brim of the pelvis. In some cases of pelvic presentation, it has been remarked by Drs. Hardy and McClintock, that the anterior-superior spinous process of the ilium presents, in the first instance, and may cause some confusion.

The diagnosis of pelvic presentations rests upon signs, some of which are common to each variety, while there are particular signs by which each special presentation may be determined. The first thing to which the attention is directed in pelvic presentations is the absence of those familiar conditions which obtain when the head of the foetus is at the brim of the pelvis; and, failing to recognise these, the accoucheur naturally looks for data upon which to found a positive diagnosis in lieu of his negative one. Popular opinion, amongst females at least, attaches much importance to the external configuration of the abdomen, and hence the slightest deviation from the usual form or size excites in women strong apprehensions of mal-position of the child. As long, however, as the long axis of the ovoid mass formed by the foetus corresponds to the long axis of the uterine cavity, it will make but little difference in the external appearances whether the cephalic or pelvic extremity of the foetus is directed downwards. Even in transverse presentations it is surprising how little affected is the figure by the position of the contained infant,

and to expect therefore any guidance in the minute difference in form and size between the upper and lower extremity of the foetus is chimerical in the extreme; it is only in very exceptional cases that an external examination throws any light upon the subject, and even then it is not from the general appearance we judge, but because we can occasionally, under favourable but peculiar circumstances, recognise the rounded mass of the foetal head, through the walls of the abdomen, lying at the fundus uteri. It has been said that when the breech presents, the lower end of the utero-foetal tumour sinks further down into the pelvis at the commencement of labour than when the head presents, and this has been said to occur whether the case is a primiparous one or not. The fact, however, if it be one, will not assist us very materially; for the depth to which the presenting part sinks in the pelvis, independently of uterine contraction, is principally the result of circumstances unconnected with the foetus, such as the size of the pelvis and the tension of the abdominal walls. In knee and footling cases, the presentation is certainly further out of reach at the commencement of labour than when the head is at the brim of the pelvis, and indeed it not unfrequently happens in footling cases that it is extremely difficult to find any presentation at all, unless the whole hand is introduced into the vagina. The form of the bag of membranes is an item better worth attention; it will be found not to have that rounded form which obtains under ordinary circumstances, and it projects more into the vagina. In footling cases the bag is quite long, and shaped like the finger of a glove, and in all pelvic presentations it is not so tense as when the head presents. Another circumstance worth attending to is the mobility of the presenting part, which in pelvic presentations is generally more resilient, and bounds up in the waters of the amnion more readily than the head does. The sensations of the mother have also been spoken of, as furnishing an indication of the position of the foetus, not to be neglected. In vertex presentations, the feet of the infant are of course directed towards the fundus uteri, and the sensations of struggling felt by the mother are generally referred to the upper portion of the uterus, and more especially to where it is in contact with the abdominal parietes. When the pelvic extremity of the foetus is its depending portion, these sensations are said to be in a great measure absent, or if perceived, to be referred to a much lower situation. Very little reliance can be placed upon auscultation in determining pelvic presentations. The foetal heart beats so nearly midway between the one extremity of its body and the other, that but little alteration in the distance from the pubis, at which it is best heard, is effected, whether the cranial or pelvic extremity of the foetus depends. When it is remembered that considerable variation in this respect obtains in cranial presentations, it must be conceded that, however useful auscultation may be in other cir-

circumstances, we can expect but little assistance from it here. In the first dorsal anterior position the foetal heart may be heard loudest a little to the right of the mesial line, and somewhat below the level of the umbilicus; in other positions the sounds of the heart are somewhat obscure, and, in short, auscultation is not to be relied upon. The manner in which the liquor amnii is discharged is peculiar, though not so characteristic in breech as in knee and footling cases. When the head presents, the membranes rupture, and a sudden gush of water follows, which as suddenly stops; this is because the head is forced down upon the os uteri, and acts as a ball-valve. In pelvic presentations, the gush is not so sudden, and the waters of the amnion continue to flow until the uterus is emptied of all its contained fluid. As might be naturally expected, the character of the pains alters as soon as the membranes have burst, and from this time until the whole body is expelled, and nothing remains but the head in the cavity of the pelvis, the uterine contractions are more clonic, continuous, and closer together than in cranial labours; the absence of fluid from the uterus multiplies the points of contact between the foetus and uterus, and increased excitation results in increased motor action. The chief and conclusive evidence of pelvic presentation is, of course, the recognition of the individual parts which offer themselves to the touch per vaginam. In breech cases, very little can be accurately distinguished before the membranes are ruptured, beyond the moveable coccyx and the rugosities of the sacrum; these can generally be felt behind one or other acetabulum. As soon as the liquor amnii has escaped, however, the finger of the accoucheur comes into direct contact with the parts of the foetus. The os uteri will be found occupied by two smooth elastic tumours, divided by a cleft, which extends in one direction towards the coccyx and sacrum, and, in the other, is continuous as far as the finger can reach. In the track of this cleft, the anus may be distinguished; it differs from the mouth in being smaller, in not containing alveoli and a tongue, and in contracting upon the finger if any attempt is made at introduction. In dead foetuses, the anus is relaxed, but the distinction may be easily made by reference to the other differences. The vulva of a female child may be distinguished from the mouth in the same manner. Further from the coccyx than the anus, the genitals may be recognised; and in the case of a male child, the scrotum, which sometimes hangs down much tumefied, is a very distinctive feature. The meconium which comes away upon the finger in breech cases is tenacious and adhesive. If the breech remains long in the passages, considerable tumefaction takes place, and the diagnosis is to a certain extent obscured; but prolonged and careful examination will generally suffice to overcome this difficulty. The knee may be recognised by its presenting for examination two rounded tuberosities, with a depression between them and the flexure of the leg and thigh, which

can easily be reached. The knee is liable to be confounded with the heel, the elbow, and the shoulder; it differs from the heel in having *two* tuberosities; from the elbow in having a *depression*, instead of the sharp point of the olecranon, between its tuberosities; and from the shoulder in having *two* tuberosities, in the place of *one*, from which the bony ridges of the clavicle and scapular spine may be traced. The foot is liable to be mistaken for the hand, but it may be identified by the following peculiarities:—In the first place, the line of the toes is regular and even, while the fingers are of various lengths, and form an irregular line. The great toe lies close to the other toes; the thumb, on the contrary, divaricates, and is opposed to the other digits. The foot is thicker than the hand, and its inner border is much rounder than its outer border. The rounded instep of the foot has no analogue in the hand. The heel projects in the opposite direction to the toes. The foot is at a certain angle with the leg, while the hand is continuous in the same direction with the arm; and finally, the foot is weightier, and not so mobile as the hand. In breech cases, it is easy to determine the exact position of the foetus, and there is no great difficulty in doing so when the knee presents; but in footling cases it is not so easy. If only one foot comes down, it is as well not to be positive until the hips enter the brim of the pelvis; but if both descend, and cross each other, the anterior surface of the body must be in the direction of the toes. When one foot comes down, it should always be identified as right or left.

Having fully satisfied ourselves of the exact position of the foetus, we have little to do until towards the conclusion of labour. The accoucheur should be an observant spectator of the operations of Nature, thoroughly cognizant of what those operations are, and capable of appreciating at once the slightest departure from their normal course. The first care should be, not to rupture the membranes. In knee and footling cases this caution is even more necessary than when the breech presents. The bag of membranes is required to the last moment, as a dilating agent; no part of the foetus in pelvic presentations will dilate the passages so equally or so efficiently as the waters of the amnion. A solid body, not possessed of the globular form of the cranium, will exercise pressure in certain directions, according to its specific form: water presses equally in every direction, and water therefore we should endeavour to retain within the membranes as long as possible. This is a cardinal point in the management of pelvic labours. Ancient practice in this particular was very different from modern, and opposed so obviously even to *a priori* considerations, that it is difficult to conceive the necessity of the hard teachings of experience to show its defects. Dr. William Hunter, at one time, used to convert all breech cases into footling ones; subsequently he was less disposed to interfere with nature, and he then found his proportion of deaths in pelvic labours

very much diminished. Smellie's advice sounds somewhat singular in modern ears; he says, "If the knees or feet of the child present to the os internum, which is not yet sufficiently dilated to let them and the body come down, let the operator introduce his hand into the vagina, push up and stretch the os uteri, and bring along the feet." Supposing the membranes to be ruptured, the best rule is to let Nature take its own course until the body is born as far as the umbilicus; only guarding the perinæum, and relieving it of tension by favouring the flexion of the trunk. The less we interfere the less rapid will the descent of the fœtus be; and it is very important to secure, if possible, a slow passage of the pelvis and trunk, and consequent complete dilatation of the passages. If the knees descend and accidentally get locked in the cavity of the pelvis, they must of course be liberated; but this is an accident, and not the usual course of events. The *laissez faire* system does not apply, of course, to cases of inertia uteri; if the breech or hips of the child do not advance, from defect of uterine contraction, either the uterus must be excited, or traction must be made upon the fœtus. Various methods of applying tractive force have been adopted: the finger may be hooked in the groin, or a silk handkerchief passed round the flexure of each thigh, or the blunt hook may be used. A dexterous obstetrician will generally succeed with the unaided hand, and, indeed, the blunt hook, is an unnecessarily formidable instrument for such purposes; it bruises soft parts, and is very likely to fracture the thighs of the fœtus. When the umbilicus clears the perinæum, the dangerous part of the labour begins; an abnormal element—viz., compression of the funis—is introduced into a process otherwise normal; and now our art must be exercised and imposed between the fœtus and impending death. The first interference necessary is to draw down a loop of the cord; this is done with a view to obviating any compression which may arise from straightening out of the spirally-coiled umbilical vessels, in the further descent of the trunk. An effort should then be made to draw the cord into one of the recesses on either side of the promontory of the sacrum, as this position is one in which there is less risk of pressure than in any other. The strength of the funicular pulsations should now be narrowly watched, as it bears a direct ratio to the chances of live birth; as long as the cord beats steadily, no interference is necessary, and indeed should be avoided. It is very tempting to see the legs dangling out ready to be grasped, and to know that the fœtus may be seized and dragged forth without much delay, and the bystanders will generally applaud the zeal of the accoucheur who endeavors to hasten the birth under these circumstances; but it sometimes happens that premature efforts at traction dislodge the arms from their position on the child's breast, and throw them up on each side of, or even behind, the head; and it again results, at other times, that the head becomes extended, that the arch of the cranium is

rotated into the hollow of the sacrum, and that the child is lost from consequent delay in the passage of the head. Until there is a valid reason, then, for interference, arising out of the condition of the fœtus or the mother, nothing should be done. As the chest is being forced out, it is necessary to be observant of the position of the arms; if they are in their natural position they will slip out of themselves, but if they are extended on each side of the head it will be proper to bring them down. It is best to bring down the arm nearest the perinæum first, as there is more room for manipulation in that direction. One or two fingers should be hooked round the humerus, near the elbow-joint, and the arm should then be drawn gently over the face and chest, not dragged directly downwards. Inattention to this precaution may procure the disagreeable accident of fracture of the humerus. This is not a very uncommon accident in midwives' midwifery, and indeed it was of old a rule of practice amongst them to break the arms, as an expeditious and simple method of meeting this difficulty of pelvic labors. The other arm should be dealt with in the same manner. As the shoulders are born the perinæum again requires care, and as soon as they are liberated the face will generally rotate into the hollow of the sacrum. The largest and most unyielding part of the fœtus has now to be expelled, at a great mechanical disadvantage. The uterus is so far empty as to have lost much of its power over what remains behind, and the birth of the head is, in fact, principally effected by the diaphragm, abdominal muscles, and muscular structures within the pelvis. Danger accrues to the fœtus more than ever now, from pressure on the cord; and the placenta is so jammed down upon the head of the child as in a great measure to destroy its function as a respiratory organ. This is the stage of labour in which life is generally lost, in which the natural powers avail least, and in which the intervention of art is therefore most needed. It is necessary still, however, to be guided by the actual condition of the child; if the cord beats steadily it is better to wait for a time than to interfere hurriedly. The signs of danger to the child are increased quickness and feebleness of the umbilical pulse, and occasional gasping respiratory movements. Whenever it happens that once or twice in the course of a minute inspiratory movements of the muscles of the chest and abdomen are observed, the head of the child remaining as yet in the pelvis, we may be sure that the child is dying of asphyxia. These movements are caused, as is proved by the experiments of Volkmann and Schneider, and the observations of Dr. Marshall Hall, by the centric irritation of the medulla oblongata by the carbonized blood of the fœtus, in cases of pressure upon the placenta or funis. No other sign of danger to the fœtus is so trustworthy as the occurrence of these jerking spasmodic attempts at respiration.

The necessity of interference being clear, there is no great difficulty in rendering it. A finger or

two of the left hand should be introduced into the child's mouth, or laid one on each superior maxilla, and the face should be drawn steadily down towards the fourchette of the perinæum; at the same time, the occiput should be pushed up by a finger or two of the right hand introduced behind the symphysis pubis. This manœuvre will bring the shortest possible diameter of the foetal head into relation with the antero-posterior diameter of the outlet of the pelvis. The head will emerge now, with the aid of gentle traction, towards the knees of the mother, and the birth is complete. Whether the position of the fœtus is a dorso-anterior one, or an abdomino-anterior, the management varies hardly at all. The occiput rotates forward from its posterior position just as in third and fourth vertex cases; and nature will generally adapt the head to the pelvis much better than the accoucheur. No force should be used in the extraction of the head. Above all, traction should never be exerted upon the shoulders, as very slight extension of the neck is sufficient to destroy the child. The stretching of the upper part of the spinal marrow is very dangerous to the life of the infant. Where the head in breech cases is impacted at the outlet of the pelvis, it is sometimes possible to pass up two fingers to the mouth of the child, and to admit a sufficient quantity of air to allow of respiration before the delivery of the head. This was first recommended by Pugh, and Dr. Bigelow, acting upon the same principle, recommends the use of a flat flexible tube for the same purpose. The forceps should always be had in readiness in breech and footling cases. When the head cannot be delivered, or respiration set up by the processes described, and when the danger to the child is imminent, the forceps should invariably be used. A delay of a minute or even a few moments may sacrifice the life of the fœtus. The

forceps is still more likely to be required in footling than in breech cases. When the child is dead or premature, particularly in the former case, less precaution is of course necessary in extracting the head.

Delay and difficulty may occur at various stages in the progress of pelvic labours; thus, there may be ascites, or accumulation of urine in the foetal bladder; or the child may be tympanitic; or there may be hydrothorax, or hydrocephalus. Any of these accidents may render evisceration necessary. Anchylosis of the coccyx with the sacrum, or a flat or too incurvated condition of the latter bone, will sometimes prove a serious source of delay and danger to the fœtus. Sometimes the os uteri seizes the neck or head of the child, and retards delivery. It is proper, in cases where the breech or lower extremities present, to be prepared with the necessary means of restoring suspended animation. An abundant supply of hot water for baths, and a gum-elastic catheter for inflating the lungs, should be at hand. If there is much cerebral congestion, it will be advisable to allow two or three drachms of blood to escape from the funis. Friction of the surface of the body, aspersion with cold water, and galvanism, may be had recourse to with benefit.

It is always interesting to note the influence of mal-presentations upon the life and subsequent condition of the mother and fœtus. As far as mother is concerned, it can hardly be said that there is any appreciable difference in the risk of cephalic and pelvic labours. Non-expulsion of the head is the circumstance most likely to prove detrimental to the mother; and bruising of the parts within the pelvis from impaction, or the supervention of inertia uteri followed by flooding, are the forms of danger to which she is exposed. The danger which accrues to the child is, however, very considerable. In breech cases the deaths are as 1 to $3\frac{1}{2}$, and in footling cases as 1 to $2\frac{1}{2}$. The gross proportion of deaths in all presentations of the pelvic extremity of the fœtus is about 1 to 3. Death takes place from asphyxia, either produced by compression of the cord or of the placenta, or from early detachment of the placenta, or coma is produced by obstruction of the veins of the neck, and, lastly, the infant may perish from shock or exhaustion. Instrumental interference is based, of course, upon the same general principles which apply to other forms of parturition. Spontaneous pelvic presentations are less dangerous both to mother and child than the artificial pelvic presentation procured by the operation of version. According to Dr. Fleetwood Churchill's collection of nearly 200,000 cases, the breech presented in the proportion of about 1 in $59\frac{1}{2}$; footling or knee presentations were about 1 in 105 cases.

FIG. 117.



Manual extraction of the head.

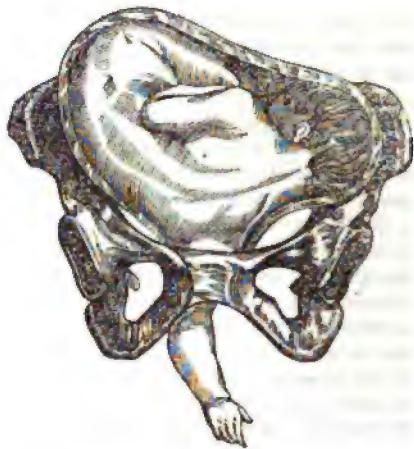
LECTURE XXVIII.

TRANSVERSE PRESENTATIONS.

GENTLEMEN,—In the preceding Lectures we have considered those presentations in which the cephalic or pelvic extremities of the foetal ovoid are found at the os uteri. We have now to treat of those presentations in which the long diameter of the fetus is opposed to the short or transverse diameter of the uterus. These cases are termed Transverse or Cross births, and include the presentation of the shoulder or some other part of the superior extremity, and the presentation of any part of the dorsal or abdominal surfaces of the child. The most important, and at the same time the most frequent, are those in which the shoulder, elbow, or hand present, all of which are spoken of as arm presentations. To these cases we may chiefly direct our attention, as the cases in which some portion of the body presents are treated according to the same principles as arm cases.

In arm presentations, two principal positions are recognised, depending on the relations which exist between the abdomen and dorsum of the fetus, and the back and abdomen of the mother. In the majority of transverse births, the back of the child is directed towards the abdomen of the mother; in a small proportion, the back of the fetus is towards the maternal spine. These varieties may be termed the Dorso-anterior, and Abdomino-anterior positions. They occur in the proportion of two of the former to one of the latter. Besides the abdomino-anterior and abdomino-posterior positions, there are four subsidiary varieties in the position of the child in arm cases, depending on the situation of the foetal head on the right or left side of the mother. In the dorso-anterior position, the head may be on the left side of the mother, in which case the right shoulder or arm is the presenting part; or it may be towards the right iliac fossa, when the left upper extremity is the presenting part. In the abdomino-anterior positions, the head may be directed to the right or left side of the mother. When it is to the left, the left arm, and when it is to the right, the right arm, of the fetus presents. As far as I am aware, no observations have been made to determine the relative frequency with which the child's head lies to the right or left side in arm cases. But this is probably a point of little importance, as the management is the same in all these variations of position. Numerous complications are met with in transverse presentations. Besides the presentation of any part of the body, the arm and head, both arms, the funis and arm, or an arm and foot, may descend together. Perhaps we scarcely ought to consider the descent of the arm and head, or of the hand and foot, as strictly transverse presentations, since it is a mixture of the transverse and the cephalic or pelvic, and may terminate in the case of the hand and head, in cephalic, or in that of the hand and foot, in pelvic delivery.

FIG. 118.



Arm Presentation in the Dorso-anterior Position.

FIG. 119.



Arm Presentation in the Abdomino-anterior Position.

There are no distinct signs of the occurrence of transverse presentation before the commencement of labour which can be depended on, though we know that in many of these cases the preternatural position is assumed some time before the date of labour. In some cases, the width of the uterus and abdomen is noticeable; but when this is the case, it is difficult to form a diagnosis between the child lying in the transverse diameter of the uterus, and twin pregnancy. In many cases there is no deformity in the shape of the uterus. In some women, the subjects of cross-births, uterine cramps and spasms are complained of; but in others nothing of this kind occurs, and labour comes on slowly, and, one may almost say, more insidiously than in other cases. Owing to the absence of the head from the os uteri, the dilatation goes on more slowly and painlessly than usual. This is a disadvantage, inasmuch as labour

is hardly suspected, and the accoucheur may not be sent for until considerable progress has been made. It often happens in transverse, still more than in pelvic, presentations, that no part of the child can be felt in an examination in the early part of labour. In arm cases, it is generally the shoulder which is the primary presentation, the arm and hand coming down as the labour progresses. When the shoulder presents, the transverse position of the long diameter of the child frequently keeps it above the brim of the pelvis for a considerable time after the commencement of the dilatation of the os uteri. When the arm or hand is felt, much care should be taken to complete the examination, so as to ascertain whether the hand is descending with the head, or whether the shoulder engages the pelvic canal. The diagnosis of arm cases is frequently difficult, and we should not give a positive opinion until we can examine satisfactorily through the os uteri. We may sometimes suspect the nature of the case by examining through the anterior wall of the cervix, before the dilatation of the os, but it is better under such circumstances never to give a positive opinion. The diagnosis between the breech and shoulder, the knee and elbow, and the hand and foot, has been given in the last lecture, so that it is unnecessary to repeat it here; the chief difficulty is in the diagnosis between the elbow and the knee, when both the leg and forearm are bent upon the thigh or arm. In cases of doubt, it is best to bring the hand or foot gently down, when the difference between the upper and lower extremities can easily be made out. No harm is done by this manipulation, either in knee or elbow cases. When there is a suspicion of arm or pelvic presentation, the patient should never be left until the nature of the case is clear; but this is particularly the case when the arm is the presenting part. It is, as we shall see, of the highest importance that arm presentations should be recognised as early as possible. Perplexing cases do however occur, in which the head presents, in the first instance, but is afterwards converted into a presentation of the arm, in a manner to be referred to presently. These are cases of deformity of the brim of the pelvis.

The causes of transverse presentations have been mentioned when treating of the natural attitude and position of the fœtus in utero, and the causes of pelvic presentations. The arm may present because of the death of the fœtus; obliquity of the gravid uterus; contraction of the pelvic brim; violent uterine contractions; twins; and excessive movements of the fœtus itself. These are the principal sources of transverse presentations. In the case of a dead fœtus, the loss of the adaptive movements of the child and the alteration in the specific gravity of the head are evidently the sources of the frequent pelvic and transverse presentations met with in such cases. In obliquity of the gravid uterus, we can easily understand that the corresponding oblique position of the fœtus may lead to the lodgment of the head above the brim, and its protrusion into the

right or left iliac fossa, while the shoulder descends. We have direct evidence that contraction of the pelvic brim is a cause of arm presentation in cases in which, with slight pelvic deformity, the head presents in the first instance, but the shoulder and arm subsequently descend. Cases of this kind have often been met with several times successively in the same patient. In these cases the head cannot easily enter the brim; the force of the uterine contractions doubles the neck of the child, and the shoulder, as a smaller part than the cranium, is urged into the pelvis. It is highly probable that irregular or violent contractions of the uterus before or at the commencement of labour may cause shoulder presentations. This explanation is the only one apparently applicable to cases which are met with in which, without pelvic deformity, the same woman suffers in successive labours from the presentation of the child's arm. In these cases excessive and painful movements, which are evidently those of the uterus, are complained of. No doubt in different women different degrees of uterine excitability exists, and we are obliged to look to the mother for the cause, in cases of repeated mal-presentation. Excessive movements of the fœtus, and great distension of the uterus with liquor amnii, so as to deprive the fœtus of the moulding influence of the normal ovoid uterus, are other causes of arm as of pelvic presentations. In twin cases, it frequently happens that one child is delivered with cephalic presentation, and the other with the breech or arm. It sometimes occurs in twin cases that both children descend with arm presentations.

The following is a history of what generally occurs in arm cases, when the pelvis is of average capacity, the child living, and of ordinary size, and when no assistance is given:—The first stage of labour, as already mentioned, is slow, and the pains are inefficient until the shoulder fully engages the os uteri. After the rupture of the membranes, which may occur at any time, there is usually a pause in the progress of labour. The liquor amnii is quickly discharged, but some time elapses before the presenting part of the child comes to exert full pressure on the os and cervix uteri. When the shoulder and upper part of the body of the child is low in the pelvis before the escape of the liquor amnii, the pains are at once increased in severity, and the fruitless efforts at the expulsion of the fœtus soon become dangerous both to the child and the mother. The shoulder is the point, as it were, of a large wedge, one side of which is formed by the neck and head, and the other by the arm and pelvis of the child. Its passage through the pelvis in this position is impossible. If the case proceeds, the pressure on the fœtus becomes immense, and its long continuance frequently destroys the child by arrest of the circulation in the placenta and funis, or mechanical compression of the body. The danger to the mother is very great. Either the vaginal discharges become offensive, and inflammation and sloughing of the parturient canal occurs; the woman dies of exhaustion, worn out by the long-

continued struggle; or the uterus is ruptured, and she perishes in this manner. Probably, at the present time, a case hardly occurs in which a patient suffering from arm-presentation passes on to the extreme catastrophe without some assistance; but, when rupture of the uterus does not occur, cases are sometimes seen which have spread over several days. It may be said, that when the fœtus is mature, and the pelvis of ordinary size, death, both to the mother and fœtus, is well-nigh inevitable, in cases of arm-presentation, when no assistance is given. In protracted arm cases, it frequently happens that the uterus is exhausted by its exertions before the time of delivery, and that frightful post partum hæmorrhage occurs from atony of the uterus.

But there are natural modes of delivery in certain cases, and under certain conditions, in arm cases. Denman found that in cases of this kind, when the pelvis was large and the child dead or premature, the long-continued efforts of the uterus were sometimes equal to delivery without danger to the mother. He observed that in some cases the arm and shoulder passed above the pelvic brim during the continuance of the pains, and the body and the pelvis came down, the child being delivered by the breech. This mode of delivery was termed by Denman "Spontaneous Evolution," version, or turning, and the explanation of this great obstetrician was received by his contemporaries. After a time, however, the explanation of Denman was called in question by an accurate observer, Dr. Douglas, of Dublin. This physician observed cases in which, the fœtus being immature or dead, and capable of doubling upon itself, the arm and shoulder remained down, but became fixed against the arch of the pubis. The shoulder being fixed against the pubis, he observed the body and spine of the child to become bent, the nates to descend to the perinæum, and the lower half of the child to sweep down the sacrum and soft parts of the parturient canal, until the breech and inferior extremities were expelled. The other arm then came down, and the head was delivered as in breech cases. Dr. Douglas termed this manoeuvre "Spontaneous Expulsion," in contradistinction to the "Spontaneous Evolution" of Denman. Other observers corroborated the explanation offered by Douglas, and Denman was supposed to have been in error when he said that the arm receded before the descent of the body and breech. Later authors have, however, ascertained that both Denman and Douglas were right, and that in one class of cases the child is born in the manner described without recession of the arm, while in another the arm does not recede, but the shoulders become fixed to the pubic arch, forming a ginglymus or hinge in this direction, while the breech and body sweep down the sacrum and perinæum. These terminations form, however, the rare exceptions in breech cases, and though it is necessary to understand them, they must never be expected or waited for in the management of breech cases. The following engravings

illustrate the process of spontaneous expulsion, which occurs more frequently than spontaneous version.

FIG. 120.



Commencement of Spontaneous Expulsion.

FIG. 121.



Further progress of Spontaneous Expulsion.

FIG. 122.



Termination of Spontaneous Expulsion.

The treatment of arm and shoulder presentations is one of the most important within the range of obstetrics. The conduct of these cases calls for all the knowledge and judgment of the accoucheur, as his proceedings must vary considerably, according to the stage of labour and the particular complication of each individual case. It may be said of all cases of arm and shoulder presentation made out at the commencement of labour, that every care should be taken to preserve the liquor amnii from discharge. With this view, the necessary examinations should be made as gently as possible, taking care to exert no pressure upon the membranes when they are made tense by a pain. The patient should be kept in the horizontal position, and cautioned against making efforts at bearing down, either during the pains, or in evacuating the rectum or bladder. In cases where the shoulder presents alone, or where the arm hangs in the vagina and the shoulder engages the os uteri, the only remedy when the child is alive and at the full period, is the operation of turning. The earlier this operation is performed the better, unless in cases where the child is so fully engaged in the pelvis, or the uterine actions are so powerful, that means are necessary to relax the uterus, in order to make the operation practicable, and to avert as far as possible the danger of rupture of the uterus, or inflammation of the parturient canal. When the hand and head present together, no great effort at putting up the arm or hand should be made, if the head has not fairly entered the pelvis, as by so doing the head may be pushed aside above the brim, and the case converted into one of purely arm and shoulder presentation. The arm and head form a less formidable complication than the conversion of such cases into the descent of the shoulder, as the hand and head may be delivered together with safety to mother and child. When the hand and head have entered the pelvis, and present at the os uteri, the hand may sometimes be passed up by the side of the head, in an interval between two pains, and if kept above the head until the pain comes on, it is swept above the brim, and the head descends alone. When the fœtus is unmistakably dead, and the shoulder or arm and shoulder present, the operation of turning should be avoided, if possible, on account of the danger the mother incurs by its performance. When the fœtus is premature and putrid, it may be brought down, as Dr. Joseph Clarke first suggested, by hooking the crotchet upon the pelvis. When the child is dead, but at the full term, and firmly wedged in the pelvis, the best practice is to eviscerate the chest and abdomen, and then to bring down the pelvis of the fœtus by the crotchet. In the case of dead children at the full term, when the case is made out early in labour, turning is an easier operation, and less troublesome and dangerous to the mother, than protraction of the case, and evisceration and extraction. In rare cases, when the pelvis is very capacious, the action of the uterus powerful, and the fœtus small, or dead, or premature, the accoucheur may sometimes be called, when, the

shoulder and arm being felt at the pubis, the ribs and body of the child occupying the lower part of the pelvis and pressing upon the perineum, and some advance of this part of the child occurring at each pain, it is evident that the spontaneous expulsion of Douglas will terminate the delivery. Sometimes this spontaneous expulsion of the child takes place with great rapidity. I was once summoned to turn a child, at no great distance from my own house, but before I arrived the woman had been delivered spontaneously. In other and rarer cases the arm and shoulder will ascend, and the nates come down, under the influence of the pains, as in the spontaneous version or evolution of Denman. As regards the great and most common procedure necessary in transverse presentations—namely, turning, the circumstances of the operation are very much varied, according as the amnion is ruptured or not; or the presenting part high or low in the pelvis; and the length of time which has elapsed in these cases between the commencement of labour and the performance of the operation. In transverse cases, auscultation of the fœtal heart is imperative, as upon the life or death of the child may depend the alternative of evisceration or turning. In many arm and shoulder cases, the child has been dead for some time before the commencement of labour, and the cuticle is falling off or the limb is putrid. In others, a loop of funis is down with the arm, and its pulseless and flaccid state informs us of the death of the fœtus. The peculiarities incident to turning in transverse cases under every variety of circumstance will have to be considered when we come to the operative part of the present course. It may be mentioned, that when the arm presents in the case of the second child in twin cases, the same treatment is to be followed as though a single child had presented with the arm. The operation of turning is generally easy in such cases, from the smallness of the child and the dilatation of the passages. No doubt in arm cases the easiest and the most difficult conditions for the operation of turning are met with. In a case where the liquor amnii remains undischarged, and the arm is found at the os uteri, the fœtus is moved as easily as a boat in water, the hand of the accoucheur can be introduced with comparative ease, and turning is a simple operation. But when the patient has been in labour, and the liquor amnii discharged, it may be for twenty-four, forty-eight, or more hours, the shoulder is jammed into the pelvis, and held as if in a vice. It is most difficult either to introduce the hand, or to move the child, and turning is one of the most difficult, if not the most difficult, operation in obstetrics. The mortality to the mother and the child, but particularly the child, under these circumstances, is very great. Dr. Lee, in his "Clinical Midwifery," relates fifty-nine cases, and records the death of the mother in eleven, and the death of the child in thirty-two cases. These cases were amongst the most severe that could be met with in consultation practice; and such results should imprint upon accoucheurs the necessity of an early diagnosis,

and prompt action in this form of dystocia. Dr Fleetwood Churchill has collected the statistics of 112,140 cases, in which the superior extremities presented 484 times, or, taking the average, once in $231\frac{1}{2}$ cases. In 242 cases of presentation in which the results to the mother and child were recorded, 127 children were lost, or rather more than 1 in 2, and 26 mothers died, or about 1 in 9. All statistics tend to show that in this complication, more than in any other, danger both to the mother and child increases with the prolonged duration of labour.

LECTURE XXIX.

PLACENTAL PRESENTATION.

GENTLEMEN,—In the present Course of Lectures I have not attempted to make any rigorous classification of the varieties of difficult or complicated parturition. The subject does not, indeed, admit of arbitrary arrangement. My object has been not to abandon method entirely, but to group similar conditions of labour together, so that mutual light may extend from one subject to another, by successively treating of those normal and morbid states which possess certain points of resemblance. Nothing can be more natural than to group together the different modes in which the fœtus presents and passes through the pelvis. But we now come to the subject of Placenta Prævia, which is related both to the varieties of presentation, and, in its most dangerous symptom, to the different forms of hæmorrhage. Still, as it is undoubtedly one of the forms of presentation, and as its attendant hæmorrhage is peculiar and in many respects distinct from ordinary flooding before or after delivery, I have preferred to consider it at the present time, after having treated of the different forms of presentation belonging to the head, trunk, and extremities of the fœtus.

The placenta may be attached over the whole of the os and cervix uteri, or it may be implanted over some part of the margin of the os, so as only partially to occupy the aperture. The causes of placenta prævia have not been determined. It is probably produced by the impregnation of the ovum after it has descended to the upper part of the cervix uteri, this being the last point at which the ovum retains its capability of impregnation and attachment to the uterine surface. The placenta may be attached to any part of the body of the uterus between the cervix and the fundus, but unless it encroaches upon that part of the cervix concerned in the development of the lower segment of the uterus, or the dilatation of the uterine aperture at parturition, no ill consequences ensue.

Up to the fifth month, the development of the ovum proceeds in the ordinary manner in placenta prævia, and if abortion occurs before this time there is nothing which indicates the site of the

placenta. After this date the development of the cervix proceeds, and, in its expansion, partial separation of the placenta from its attachment is prone to occur. This separation is attended by the frightful and sudden hæmorrhages which characterize placental presentations. The irritation of the uterus by the placental attachment to the cervix, and the separations which occur, often lead to abortion or to delivery before the natural term in these cases. Sometimes patients go on to the full term when suffering from this complication, without the occurrence of hæmorrhage before the commencement of labour.

The symptoms of placenta prævia are sufficiently distinctive. Occasional hæmorrhage occurs, generally between the seventh month and the end of gestation. The discharge commonly takes place suddenly, without pain, and ceases after a while, or the drain may continue for a considerable time. The nearer the patient is to the full term, the more violent is the loss of blood. The gush may take place after some exertion, or when the patient is following her usual avocations, or when she is asleep. The loss is sometimes so sudden and so enormous, that the woman is dead before the medical attendant can be summoned. Generally, there are several sudden losses to a less extent, before the advent of labour. Flooding may recur at variable intervals, of a few days, a week, a fortnight, or it may break out at the dates of the catamenial periods. Placental presentation should always be suspected, whenever hæmorrhage occurs in the latter part of pregnancy. Sometimes labour comes after the discharge; at others, there are no traces of uterine action until after several attacks of flooding. There are no sensations belonging to the patient herself which indicate malposition of the placenta, but the uterine soufflet is heard in these cases with most distinctness in one of the iliac regions, or the hypogastrium. When we examine internally, if the os uteri has dilated, the soft mass of the placenta can be felt between the finger and the presenting part of the child. The soft placental layer may be felt in the entire field of the os uteri, or occupying only one margin of the os. If the flooding has been very severe, a portion of the placenta, or the greater part of the organ may be felt protruding through the os uteri. When the os is quite closed, the placenta can sometimes be distinguished through the walls of the expanded cervix, particularly if the head presents, and the placenta lies between the finger and the fœtal cranium. In the case of breech or shoulder presentation, the detection of the placenta is more difficult. If the os uteri should be so high up in a case of suspected placental presentation, as to be beyond the reach of the finger, the whole hand should be carefully passed into the vagina, so as to enable us to reach the os and make the necessary examination. Fatal results have often happened from inattention to this point. There is hardly any other critical emergency in midwifery in which an early diagnosis and prompt treatment are of such importance. The separation of the placenta

may be small in extent, or the whole or nearly the whole of the organ may be detached. What usually happens is, that at each recurrence of hæmorrhage, small portions of the placenta are detached, up to the time of labour. Before the commencement of labour, and when no symptoms of abortion are present, the cause of detachment is the developmental expansion of the cervix uteri; but when labour has set in, the active dilatation of the os and cervix effects the placental separation. The most violent and dangerous cases are those in which little or no hæmorrhage occurs unto the full term, when sudden and extensive detachment takes place, the utero-placental vessels having reached their full development. The woman may, under these circumstances, be deluged with blood, and reduced to the utmost extremity of danger in a few minutes. Where partial and repeated separations occur, the uterine vessels which have been laid open contract, and the blood coagulates in that part of the placenta which has been separated. This process may be repeated several times before the coming-on of labour, and while the placenta is only partially attached over the os uteri. In rare cases it happens that the whole of the cervical portion of the placenta is detached in this manner, and little or no hæmorrhage occurs at the time of labour. In other cases of partial placental presentation the cervical portion of the placenta is completely detached at the time of labour, and no serious hæmorrhage occurs after the first outbreak. Still more rarely, when the uterine action is very powerful, the pelvis capacious, the fœtus small or of moderate size, and the patient multiparous, the whole of the placenta is detached, and the fœtus and membranes expelled with such rapidity that no dangerous loss occurs. These cases have led some to imagine that in entire placenta prævia Nature may be trusted more than she is. But the conditions are so unfavourable to

the safety of the patient, that such reliance is worse than on a broken reed. This conjuncture offers no place for a Fabian plan of treatment. To wait, is generally to kill. In case of placenta prævia we have the circumference of the os and cervix studded with large vessels, the mouths of which gape widely open as the placenta separates and the os and cervix dilate. And this separation and dilatation must occur. There is no escape from them and the slow and gradual way in which the preparation for the exit of the fœtus is generally made, and which in ordinary cases tends so much to the safety of mother and child, is here their destruction. The hæmorrhage in cases of placenta prævia has been called "unavoidable" hæmorrhage, by way of distinguishing it from hæmorrhage from the fundus uteri occurring before labour, which has been termed "accidental." In the one case separation and hæmorrhage may, in the other they must, occur before the completion of delivery.

The chief methods of treatment followed in cases of placenta prævia are—1. The use of the plug, or tampon. 2. Puncturing the membranes. 3. Turning the child. 4. The partial, or the entire separation and extraction of the placenta. I propose to point out in detail the cases and conditions in which these several modes of practice are applicable.

Plugging the Vagina is adapted to cases in which, after the first loss, a continuous drain, varied by slight eruptions of blood, is going on, particularly when this occurs at the sixth or seventh month. By plugging the vagina with moderate force, the lower segment of the uterus is compressed between the plug and the contents of the uterus, and an impediment is offered to the escape of blood, and coagulation of the blood effused is promoted. Care must be taken that the plugging be not too forcible, otherwise uterine contraction and further separation may be excited by the irritation of the plug. The best methods of plugging the vagina are by introducing strips of lint, pieces of sponge, or a silk handkerchief, dipped in vinegar and water, or iced water. Pieces of ice, wrapped in lint, may be introduced. There is a great advantage in the sponge-plug—namely, in its expansion from absorbing the blood, or the secretions of the vagina. But this is, to a great extent, counterbalanced by the rapidity with which sponge, from the animal matter it contains, becomes fœtid in the vagina. It cannot, on this account, be allowed to remain in the passage more than a few hours. It is, therefore, the best temporary plug, but it is not adapted to cases in which continuous plugging is required. As an ordinary plug, nothing exceeds in utility strips of lint, introduced one after another until the vagina is filled up. Even in plugging with lint, or a silk handkerchief, the plug requires to be changed from time to time, as whatever the plug, the retained blood and discharges, to which air is necessarily admitted, have a tendency to become rapidly fœtid. Whatever the treatment adopted in placenta prævia, one precaution should always

FIG. 123.



Entire placenta prævia.

be adopted—namely, to keep the patient in the horizontal position, with the pelvis somewhat raised. The temperature of the room should be cool and equable, and the diet light and unstimulating, except when the patient is suffering from the direct effects of loss of blood. Under these circumstances, brandy, ammonia, and beef-tea may be administered freely. I do not believe that in unavoidable hæmorrhage, internal astringents, such as gallic acid or the acetate of lead, are of more than the slightest use, and they tend to divert the attention of the practitioner from more important measures. With this exception, the treatment of placenta prævia in the fifth or sixth month, when the os uteri is undilated, and the flooding not dangerous in extent, is hardly distinguishable from flooding in ordinary abortions. When hæmorrhage has once occurred, the patient should be kept as quiet as possible, lest a further separation should be produced.

Puncturing the Membranes and Evacuating the Liquor Amnii in placenta prævia is a practice of very ancient date. It is occasionally useful, and is adapted for cases in which the hæmorrhage is not of the most alarming character, where the os uteri is either closed or only dilated to a slight extent, where the pains of labour have already commenced, or where it is considered advisable to induce premature labour in this manner, where the liquor amnii is in large quantity, where turning is impossible, and where, the child being alive, it is judged best not to attempt the separation of the placenta. This operation is preferred in cases of partial attachment of the placenta over the os, where the membranes can be ruptured either by the finger, or a probe or trocar at the part free from placenta; but it has sometimes been performed with the effect of arresting the hæmorrhage, through the placental mass, in cases of complete attachment over the os uteri. Puncturing the membranes in placenta prævia does not arrest flooding simply from diminishing the size of the uterus and exciting contraction, but by lessening its size and vascular supply, and bringing down the head or presenting part of the child, so as to act as a plug to the placental site. The disadvantages of puncturing the membranes are, that turning is thereby rendered difficult, and the risk of sacrificing the child is increased. In cases where the labour is premature, and the child non-viable, these objections do not apply at all; nor in cases where the child is dead, as craniotomy could then be performed. It is, however, questionable whether in these cases the extraction of the placenta should not be preferred.

In my opinion, Turning is the great operation in placenta prævia, when the child is living and viable,—that which, if performed at the proper time, affords the greatest chances of safety both to the mother and the child. But there are circumstances in which turning is the best practice when the safety of the mother alone is concerned, the child being already dead. The conditions favourable to turning are, a dilated or dilatable state of the os uteri, the retention of the liquor

amnii or a moderately relaxed state of the uterus, a pelvis of average capacity, the absence of dangerous exhaustion, or a temporary cessation of the hæmorrhage. If the placenta be attached to one side of the uterus, the hand should be introduced on the side opposite to the placental site; or if it extends over the whole os, the hand should be passed in the direction in which the attachment is least considerable, or when the separation has already taken place. The advantages of turning are, that without materially increasing the danger of the patient, and in a very short space of time, the feet and body of the child may be brought down so as to act as a tolerably efficient plug to the os and cervix uteri. During the early part of the operation, the hand and arm of the accoucheur form a tampon. Turning is generally easy in placenta prævia, at the full term, as compared with other cases in which it is required, because the contractions of the uterus are commonly less powerful than usual. The flooding itself tends to dilate the os uteri, and to weaken uterine action. It is, therefore, a less severe operation to the mother than in many other cases in which it is called for. This is particularly the case in multiparous women. As regards the state of the uterus, primiparous women, as in other cases requiring turning, offer greater difficulties than women who have borne children. When the operation of turning is performed early, the proportion of mothers saved is large, and a considerable number of children are born alive. Turning should always be performed in placenta prævia, when it is considered advisable, the instant the operation is rendered practicable by the condition of the os and cervix uteri. In cases where the os uteri has been dilated for many hours, sufficiently to admit of turning, and blood or strength has been lost in the interim, we should blame, not the operation, but the delay, for a great proportion of the fatality to the mother and child. In some cases of partial placental presentation, the head may be so low that the use of the forceps will be preferable to turning; or this operation may become necessary after the spontaneous or artificial expulsion of the placenta. In other cases, as when the head is low, and the child dead, or when the pelvis is deformed, craniotomy may be called for. Dr. Radford has advised the use of electricity, in connexion with the other methods of treatment, in these cases.

I have now to refer to the Artificial Extraction of the Placenta before the birth of the child, which has certainly been one of the most prominent points in obstetric practice during the last ten or twelve years. It is one the settlement of which is of great interest, as nothing can be more unsafe than halting between two opinions upon such a subject. From an early period, it had been remarked by accoucheurs that cases of unavoidable hæmorrhage were occasionally met with, in which the placenta was expelled spontaneously before the birth of the child, and that the hæmorrhage was arrested by the separation of the placenta. The first person who seemed to have

pointed out the deduction of a rule of practice from such cases was Mr. Chapman, of Ampthill. The placenta was removed in some cases of placenta prævia, by Mr. Kinder Wood, of Manchester, and subsequently by Dr. Radford. Probably cases have always occurred in which accoucheurs, finding the placenta loose in the vagina, or almost entirely detached, have removed it. Dr. Simpson took up this subject in 1844, and, with his usual ability and force, pointed out what he considers the advantages of this operation, the principles upon which it is and the cases to which it is applicable. The founded, tenor of Dr. Simpson's earlier writings was such as to lead to the belief that he wished to supersede in great measure the operation of turning, by the separation and extraction of the placenta. This impression has continued to a great extent up to the present time, and it is upon this impression chiefly that its opponents have attacked and denounced the operation. In one of his latest publications on the subject, in *THE LANCET*, 1847, vol. i., he has corrected this, and insists upon the limitation of the extraction of the placenta to cases "when the other recognised modes of management were insufficient or unsafe, or altogether impossible of application," or when the old methods of practice "were attended by extreme hazard or extreme difficulty." Dr. Simpson combined with his advocacy of this practice an exposition of his views as to the source of the hæmorrhage in placenta prævia, which met with great opposition. Dr. Hamilton advocated the doctrine that the hæmorrhage in placenta prævia "proceeds from the separated portion of the placenta more than from the ruptured uterine vessels." Dr. Simpson endorses this view to the full extent, and I suspect it is this, as much as the rule of practice itself, which has excited the opposition which has been manifested. According to this hypothesis, the blood lost in separation of the placenta flows from the placental cells, the supply to these cells being kept up by vessels supplying the undetached portion of placenta. It is supposed that as the separation proceeds, the veins of the uterine surface from which the placenta is detached, are closed so as to prevent any retrogressive hæmorrhage from the uterus.

Dr. Simpson's theory of the source of the hæmorrhage, upon which he to some extent rests his practice of separating the placenta, is, I believe, altogether untenable. No proofs of the escape of the great quantities of blood lost in these cases, from the placental surface, can be given. The theory mainly rests upon the anatomical arrangement of the uterine arteries, the placental cells, and the openings upon the placental surface. No doubt there is an unobstructed channel for the flow of blood from the curling arteries, through the placental cells and the openings found upon the placental surface, when this has been separated from the uterus. But there are, as it appears to me, valid reasons why we should believe that the sudden and great gushes of blood poured out in placenta prævia do not escape in this way. The uterine arteries are of comparatively small calibre,

and the openings upon the placental surface are neither large nor numerous. Supposing one-half of the placenta to be detached, it is highly improbable, I should almost say impossible, that the profuse loss frequently met with in these cases could come from the uterine arteries entering the undetached portion of the placenta, even if they were all discharging blood simultaneously. In the cases of profuse loss which sometimes occur, when only a small portion of the placenta is detached, it is equally difficult to suppose that the blood could escape from the openings met with on a square inch of placental surface. There are, on the other hand, valid reasons for believing that the uterine veins are the real sources of hæmorrhage in placenta prævia. The size of the venous openings, the valveless state of the uterine veins, the channel being unimpeded from the right auricle to the open mouths of the sinuses, furnish anatomical arguments in favour of this source for the flow of blood which are stronger than those derived from the anatomical arrangement of the uterine arteries, and the placental sinuses, in favour of the opposite view. Then we have the facts connected with post-partum hæmorrhages. The only hæmorrhages comparable for suddenness and extent to the losses in placenta prævia are those which occur after labour, and the expulsion of the placenta, in cases where it has been attached at the fundus uteri. Here there can be no question but that the hæmorrhage takes place from the open mouths of the uterine veins. I have not observed any difference in the colour or character of the blood in post-partum hæmorrhages and those caused by placental presentation, and the weight of evidence is in favour of the venous character of the blood lost in placenta prævia. It is noticed that in this form of flooding the loss is increased during the pains, as it is believed, by the enlargement of the uterine openings by the dilatation of the os and cervix uteri, whereas, in hæmorrhage from the fundus, the flow of blood is arrested during the continuance of pain and contraction. When the separated portions of placenta have been examined, it has been found that the sinuses and cells have been filled with coagulated blood. In some cases, in which the placenta has been detached and expelled artificially or spontaneously, flooding has occurred after the expulsion of the placenta. Here the blood must have been in great part from the uterine veins, yet the flooding presents no difference to that occurring from the partial separation of the placenta. The inference from all these facts appears to be, that in the hæmorrhage from placenta prævia the blood escapes in great part from the uterine surface, and not from the maternal surface of the placenta. There can be little doubt that some blood must exude from the surface of the placenta in cases of partial separation, whether the placenta be attached to the fundus or cervix; but I contend that this is not the chief source of flooding in placenta prævia.

While I thus take exception to Dr. Simpson's theory of the nature of hæmorrhage in placenta prævia, I do not question the correctness of the

fact upon which he lays so much stress—namely, the frequent, and indeed common, arrest of the hæmorrhage on the entire detachment of the placenta. Dr. Simpson's theory does not appear to me to be necessary to the explanation of this matter. In my work "On Parturition," I pointed out that the separation of the placenta furnishes a source of irritation which excites the uterus generally, and the muscular structure at the sight of the placenta especially, to contraction, and that in this way hæmorrhage was prevented. This is probably the reason why, in twins with separate placentæ, there is frequently no hæmorrhage between the expulsion of the first placenta and the birth of the second child. It is reasonable to suppose that the same thing occurs in placenta prævia, after the separation and extraction of the placenta, in the intervals which occur between the pains. The tendency to hæmorrhage from dilatation of the orifices of the veins during the pains is corrected by the descent of the head or presenting part, and mechanical compression of the uterine walls.

Dr. Simpson unequivocally demonstrates that in a great number of cases recorded by various authors, both before and since the publication of his views, the placenta has been detached and the hæmorrhage arrested. There can, indeed, be no question upon this point. Those most opposed to Dr. Simpson, Dr. Robert Lee, for instance, record cases in which the hæmorrhage ceased after the spontaneous expulsion of the placenta. The cases to which, in his most recent writings, Dr. Simpson would advise separation and extraction are those in which the evacuation of the liquor amnii is of no avail, when the state of the patient is such as to call for interference, but where turning, or other measures of delivery, are impracticable, from rigidity, or non-development of the os and cervix uteri, or distortion of the pelvis. He would also employ it in the case of dead, premature, or non-viable children, particularly when the uterus has contracted, or is so imperfectly developed as not to admit of turning. It is questionable if rigidity can be a valid plea for this operation, except in very rare cases. When the os uteri is sufficiently open to allow of the admission of the fingers for the purpose of separating the entire placenta, there will generally be room enough for the admission of the hand. I believe the separation and extraction of the entire placenta the best practice in those cases in which it is attached all round the os uteri, and in which the exhaustion is so great as to render some more rapid attempt at assistance than the operation of turning imperative. In some of these cases the patients would be killed by turning, if the hæmorrhage were going on simultaneously with the operation.

The extraction of the placenta offers a means of arresting hæmorrhage, and after a short rest the patient may be sufficiently rallied to bear turning; for it must be remembered, that in many of the cases in which the placenta has been extracted artificially, turning has been necessary to complete the delivery. In all cases where the child is alive

and viable, delivery should be effected, by turning or the forceps, as soon as possible after the extraction of the placenta, if the state of the patient is such as to bear the operation. Extraction may be sometimes useful in cases where turning is impossible, as in cases of contraction of the uterus or pelvic deformity, and when the removal of the placenta may arrest hæmorrhage and facilitate the operations of turning, craniotomy, or evisceration. It may also be practised in some cases of dead or premature children, when the hæmorrhage is going on, and turning is difficult from any cause. When the flooding is not profuse, and when the uterus is roomy and the waters undischarged, the extraction of the placenta before the child offers no great advantage. The whole subject has been ably handled by Dr. Chowne, and Dr. Fleetwood Churchill gives a very candid exposition of the disadvantages of the operation.

It is necessary to refer to the statistical arguments which have been advanced in favour of the operation. Dr. Simpson has given a table of 654 cases, collated from various authors, from Mauriceau to the present day, in which the treatment consisted of turning, &c., the child being extracted before the placenta. This he contrasts with another table of 141 cases, in which the placenta was removed or expelled before the child. In the 654 cases, 180 mothers, or 1 in 3.6, were lost. In the 141 cases, the maternal mortality was 10, or only 1 in 14, which apparently gives a very large balance in favour of the extraction of the placenta before the child. But it has been argued by Dr. Barnes that we cannot fairly suppose cases in which the placenta is extracted artificially will prove as favourable as those in which it has been detached and expelled without assistance. The cases in which the placenta is expelled by the natural efforts are those in which the pains are powerful, the placenta being expelled suddenly and the child speedily born. In the case of artificial detachment and extraction, no assistance from the uterus can be reckoned on. The difference is very great between the spontaneous separation and expulsion and the artificial detachment and extraction of the placenta. The published cases of extraction of the placenta are too few to found upon them any precise conclusions; and it must also be remembered that the advocates of any novel mode of practice are more prone to publish successful than unsuccessful cases. The statistics of Dr. Radford, of cases in which the placenta was removed by the hand, are not so favourable, as regards the mother, as those of Dr. Simpson.

By the ordinary methods of practice, rather more than half the children are lost; and Dr. Simpson attempts to show that the mortality is scarcely more than this when the placenta was extracted before the child. He gives a table of 141 cases: of these the child was saved in 33 cases; in 79 cases it was born dead; in 1 the child was anencephalous, and died shortly after birth; in 28 cases, the result, as regards the child, was not stated. But such a state of mortality cannot be hoped for from artificial extraction. In many of

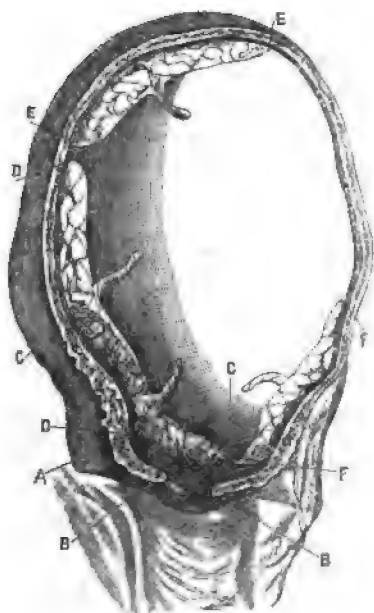
the cases of spontaneous expulsion, the foetus, membranes, and placenta are expelled by the same pain. Dr. Simpson, as Dr. Fleetwood Churchill observes, has only recorded one case of the child being born alive when the interval after the removal of the placenta was more than ten minutes. Dr. West collected 17 cases; but in 16 of them the children were lost. If this frightful rate of foetal mortality should be preserved, it must go far to prevent the adoption of extraction in any but the most unpromising cases.

In 1847, Dr. Barnes enunciated the principle, that a partial separation of the placenta might, in certain cases, be sufficient to arrest the hæmorrhage, and at the same time afford a chance of safety to the child. In a recent paper on this important subject, an abstract of which was published in *THE LANCET* in January last, Dr. Barnes recommends a partial detachment of the placenta in cases where it is partially attached to the cervix, or where it is implanted in its whole circumference. His method is to detach that portion of the placenta attached to the cervix, after which he believes that no further separation is produced by the uterine pains, and the hæmorrhage entirely ceases. The portion of the placenta attached above the cervix is left, and remains as a medium for the supply of the foetus. Dr. Barnes has collected a large amount of clinical fact and experience bearing upon this subject, and it is to be desired that he should publish his views *in extenso* with the practical results. Nothing could be more

valuable than the establishment of a mode of practice which should diminish the danger to the mother, and increase the chance of safety to the child. In Germany, several physicians have done Dr. Barnes the honour to claim and contend for originality in advancing the doctrine of the partial separation of the placenta; but there can be no doubt the principle was clearly expressed by him nearly ten years ago. The preceding engraving, executed from a drawing by Dr. Barnes, indicates the various positions in which the placenta may be attached. (Fig. 124.)

The danger as regards the mother, in placenta prævia, arises chiefly from the direct or secondary effects of loss of blood, and from injuries done to the passages by operative proceedings. Dr. Tyler, of Dublin, has related a case, in which traumatic tetanus followed upon placenta prævia. Uterine phlebitis is frequently met with after placenta prævia in cases where the patient survives delivery. Out of sixty-four cases, Dr. Lee records that phlebitis occurred in six cases. As phlebitis occurs in cases where turning has not been performed, or where the operation gave little or no pain, it is probable that the disease of the veins may be caused by their being bathed in the uterine discharges as they pass the os and cervix uteri. The special dangers to the child arise from asphyxia, the result of the flooding, or pressure on the cord in turning, &c.

FIG. 124.



Varieties of placental attachment.

- E, E. Fundal Placenta.
- D, D. Lateral Placenta.
- E, F. Latero-cervical Placenta.
- C, B. Seat of cervico-utricular, or central Placenta.
- A, F. Line of boundary between normal and praevi placental attachment, and consequently of spontaneous placental detachment, during expansion of cervix.

Lectures
ON THE
HISTORY AND CONSTITUTIONAL CHARACTERS
OF
PHTHISIS,
DELIVERED AT THE
Hospital for Consumption and Diseases of the Chest.

BY JAMES E. POLLOCK, M.D.,
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LECTURE II.

(Concluded from Nov. No., p. 412.)

I would now examine the *form* or *build* of the class of persons who become phthisical. This has been long a disputed question, but the practical eye can detect in the greater number of patients, the following conformation of chest:—It is long and shallow rather than wide and deep; its greatest deficiency is in the antero-posterior measurement, or in *depth*. Its length is remarkable, and Rokitansky has even insisted that diseases or conditions which force up the diaphragm, and shorten the thoracic space, are antagonistic to tubercle. Such are abdominal tumours, cysts, and, remarkably, pregnancy. This observation is worthy of note, although, perhaps, such conditions have another meaning, inasmuch as they diminish, by appropriating to new growths, the excessive fibrin of the blood. My colleague,

Dr. Cotton, in a paper referred to before, is of opinion that all forms of chest are equally obnoxious to tubercle; but I should rather suppose that he was led to this statement by the observation of the fact to which I have called your attention—that no conformation of the thorax confers an immunity from phthisis, the most robust in appearance, and persons with the largest chest measurements, falling victims to it.

In estimating the possible causes of tubercle, we cannot overlook the belief of our continental neighbours, that it is *contagious*; and on this point I would quote some remarks which I made some months ago in a paper in *THE LANCET* (vol. ii. 1855.) :—

“In diseases of acute character and of marked intensity we find a difficulty in obtaining positive evidence of contagion, even although certain localities of defined extent may alone be attacked, and the invasion and progress of the epidemic may have been noted with peculiar care. An increased difficulty manifestly attends the investigation of the possible effects of contagion in phthisis, its attacks being insidious, its progress slow, and its localization indefinite; while the circumstances, such as impure air, poverty, deficient food and clothing, and certain occupations which are supposed to prepare the system for the disease, are of universal prevalence as regards time and form, the inevitable features of civilized society everywhere. Again, in the cases which seem to favour the theory of contagion—as when the wife or parent, from attendance on the husband or child affected by phthisis, are attacked by the disease themselves—we have, in addition to the manifest tendency to tubercle, which blood relationship gives, (where it exists,) an aggregation of the very circumstances which notoriously predispose to an attack—anxiety, night-watching, irregular and hasty meals, deprivation of fresh air, and a mental concentration on every feature of a slowly destructive malady. The presumptive evidence is also as yet against the theory of contagion, inasmuch as we are as yet unacquainted with any chronic disease which is unmistakably communicable by anything short of inoculation with a virus; and exceptions of this class are probably confined to syphilis, porrigo, and psora.”

We are now arrived at a period in this investigation at which we may consider with advantage the affections which are rarely allied to phthisis, and which may therefore be supposed antagonistic to it in some manner hitherto unexplained. And here we may remark how completely tubercle seems to *monopolize* the system. How rarely do we see any disease whatever combined with it! if it be not some of those consecutive attacks indicating the deposit of the morbid matter in other organs: as in the peritoneum, giving rise to peritonitis; in the intestines causing ulceration and diarrhoea; in the brain and meninges, and in the larynx. From my own observation, I have mentioned the remarkable immunity of the phthisical in Rome from malaria fevers; and other facts are equally striking, exhibiting almost a preoccupa-

tion of the system, to the exclusion of other poisons.

Let us examine the facts as they stand in our experience; and here, where 100 out-patients is the average attendance per diem, the field for observation is large on such a question as this.

Skin diseases of every class are extremely rare in phthisis; if there be an exception, it is *herpes*, and that is not often seen. The excessive action of the skin, as shown, not only in the hectic access, but in the relaxed and flabby condition which obtains in chronic phthisis, may partly account for this exemption; but a deeper cause is no doubt to be found in the state of the blood.

Rheumatism is also very rare, and Rokitanaky considers it antagonistic, as absorbing the fibrin of the blood in its action on the fibrous tissues, where plastic deposits so commonly result. The same of gout; it is rarely combined with phthisis, and for reasons connected with the systemic disorder, which time does not now permit of our examining.

Hypertrophy of the heart, or hypernutrition of any organ, is not often found combined with tubercle. Cancer may co-exist with it, but their coincidence is not common. I have myself recorded (“*Pathological Transactions*,” vol. iii.) a case of the kind, seen and diagnosed during life, and verified by the post-mortem appearances; and others may be found in medical works.

Nor are *tumours* commonly seen in phthisical subjects, which is probably explicable in the same manner, the fibrinous constituent of the blood being taken up by their growth and nutrition.

External strumous enlargements of the glands proceeding to suppuration are certainly not a common complication of tubercle in the lung. It is rare to meet with the scars of scrofula in the glands of the neck in the cases presenting themselves here. This is a practical observation which I believe the experience of my colleagues will corroborate; and it is a curious fact,—for we are accustomed to class tubercle with scrofula, and to attribute its external manifestation to the same cause which induces phthisis. Whether it be that the glandular swellings act in diverting the morbid action from the internal organs, or whether the two affections are not due to the same constitutional cause, is a very deep problem, and one very suggestive of theories which, in the present state of our knowledge, would be premature. Suggestive facts are of all the most valuable, if we guard ourselves from too hasty a generalization, so often leading to a defence of deductions which may have been too lightly assumed.

Rickets in the developed subject, where growth has ceased, are certainly but seldom combined with tubercle in the lung. *Deformed chests* are generally healthy, or emphysema and cardiac disease from congenital defect or malformation are the affections met with; but *not phthisis*. Is it that the ricketty child is invariably carried off before the age at which consumption assumes its greatest intensity and its largest rate of mortality!

The immunity of such subjects is certainly a remarkable fact.

Of lung diseases, emphysema is the one which seems almost antagonistic to phthisis; nor is this to be wondered at when we reflect on the atrophy of the pulmonary tissue and resulting diminution of respiratory volume which are the leading characters of the latter, constituting physical conditions which are the reverse of the distended cells of emphysema.

Anæmia, even in its extreme or chlorotic stage, is not commonly allied to tubercle in the lung; and as the popular idea is counter to this, I would make a few observations on their differences. The symptoms of anæmia are extreme pallor of the skin, the tongue, the mucous surfaces, and the palpebral conjunctivæ. The veins are small and purplish; the pulse is weak, compressible, rapid, and thready. There is dyspnoea on exertion, and palpitation, and generally a short, dry cough. Faintness and occasional syncope indicate the imperfect supply of blood to the nervous system, and œdema of the extremities points to enfeebled capillary circulation. The physical signs are—that the percussion note is uniform and good, and the respiratory murmur low. Over the aortic valves there is often a soft murmur synchronous with the first sound, and a venous murmur, or whizzing, is heard in the neck. Such patients often come to us as consumptive, but a differential diagnosis is by no means difficult. First, there is the *absence of rapid wasting*; there is no hectic; and the symptoms of weakness are distinctly referable to the impairment of *nervous* power rather than to *muscular* debility. The absence of the physical signs of phthisis is of course diagnostic; but it is still further remarkable that the soft murmur of anæmia in the aorta, and the whizzing in the veins, are rarely found in tubercle of the lung. For this observation, which my own experience confirms, I am indebted to my colleague, Dr. Thompson. The stage of phthisis which is accompanied by symptoms of impoverishment of the blood, and which is certainly a true anæmia, in so far as it manifests and actually consists in a deficiency of the coloured corpuscles of the blood, is not to be confounded with pure and (so to speak) idiopathic anæmia. The phthisical condition referred to is more properly a *cacœmia*, and takes place when the blood contamination has reached a stage which is only coincident with an advanced period of the tubercular affection. The comparison I have instituted has reference to the doubtful symptoms of the *early stage* of phthisis.

The influence of *pregnancy* in retarding consumption has been observed on, and deserves our consideration. That it *has* such influence is, I believe, true, and the conservative protection of life for an important physiological purpose is very manifest in this provision. The advanced case of consumption will outlive parturition, to become rapidly accelerated when this important function is completed. Whence is this? Are we to attribute it to the exhaustion consequent on labour and the sanguineous loss? or to systemic causes

of a deeper seat? That Nature preserves a life for an important purpose is only a statement of the fact in other words; we want to know *the means* by which this retardation of the tubercular stages is effected. In the absence of absolute knowledge, and straying from our inductive argument so far as to theorise and then apply the facts, (a method by no means free from the danger of serious errors creeping in,) we might suppose that the hyperfibrinated blood, having another use in foetal growth and nutrition, ceases to deposit itself as tubercle, but that this cause once removed, the fibrin expends itself once more on the morbid material in the lung.

The rapid reduction of the uterus itself after parturition must throw an excess of fibrinous waste into the blood, and hence the frequent origin of phthisis after labour, or the more frequent impulse which already existing disease so commonly receives.

Conditions rarely combined with Phthisis.

Skin Diseases.

Hypernutrition of organs.

New growths.

External suppurating struma.

Rachitis.

Intermittent fever.

Cancer.

Emphysema.

Pregnancy (retarding the progress of tubercle).

Anæmia (with the first stage).

These remarks naturally lead us to consider the various theories which have been proposed to account for tubercle formation; and although a lecture from this place should be practical, and is meant to display, as far as possible, the results of what we see and experience of a large number of cases, still, we must feel, that to stop short without one glance at the deeper questions which arise out of these facts would be to sever a chain of inductive reasoning, before we have reached the limits which, even as practical men, we most desire to attain. On these limits truth and error reside, and speculation, impossible to check, begins. No man can reason up through a series of varied phenomena, possessing many common characters, without endeavouring to reconcile their points of resemblance, by referring them to a common cause, which, if proved, shall ever after assume the significance of a natural law. But these so-called laws, arising out of accumulated evidence, are rarely attained in vital science, and we must study, as feelers in the dark, with diffidence but not without hope.

Let us then, without advocating any theory, examine the knowledge which we have, from practice, with relation to the pathological problems which are daily offered to us regarding tubercle. Let us see if the facts which we have accumulated can be classified and referred to any common law of action. Now this will be best done by comparing announced theories with known observations, and in doing so we are secure from error so long as we take nothing for granted.

Undoubtedly the most prevalent idea of the

day with regard to the nature of tubercle, is that put forward by Rokitanaky, who says that "the tubercle crasis is without doubt a fibrin crasis—*fibrinosis*. It is not this in respect to quantity alone (hyperinosis), but also (and this is the more important side of the anomaly) in respect to quality" (Rokitanaky, vol. i., p. 311). Now we have not here to deal with the arguments in favour of this view, which are derived from chemical and microscopical sources, but propose only to consider how far the excess of fibrine in the blood and its altered quality appear to coincide with, or account for, the phenomena of phthisis as we see it.

A simple excess of fibrin in the blood is common to several diseases, and to one period of pregnancy. Taking its standard proportion in health to be from 2 to 3 in 1000 parts, it is increased by local acute inflammations to 7 and even to 13, and in phthisis to 10. M. Andral, from whose observations I have borrowed the figures, states that it is increased in pregnancy after the seventh month, but diminished in the early stages.

FIBRIN.

In healthy blood, 2—3 in 1000 parts.

<i>Increased in</i>	<i>Diminished in</i>
Local inflammation.	Fever, simple.
Phthisis.	Typhus.
Later months of pregnancy.	Apoplexy. †
Rheumatism.	Early months of pregnancy.

Its diminution below the healthy standard is noted in simple continued fevers, in typhus, and in apoplexy.

The leading point to remark here is, that tuberculosis notably increases the proportion of fibrin; and that in the history of phthisis in pregnancy we recognise a subsidence of the consumptive symptoms coinciding with the period of the *minimum* quantity of fibrin in the blood, and an increase of the phthisical disease immediately after delivery, when the hyperfibrination of the blood is at its maximum. So far this theory and the progress of the disease coincide.

Again, the proportion of fibrin in the blood is not lessened by bloodletting and anæmia, but perhaps relatively increased, an exhausted state of the system in these conditions resulting rather from a diminution of the red corpuscles than from a change in the fibrinous element. We thus seem to learn that many diseases of exhaustion do not lessen the solids of the blood, but render it more watery, and diminish the red particles. This altered condition may manifestly lead to certain changes in the capillary circulation by which the excess of fibrinous material shall be separated and deposited as extraneous matter. A highly-vitalising system might organise or remove it by excretion; an exhausted vitality may find it too much for assimilation, secretion, or organization, and hence it remains as an excessive product. But Rokitanaky's theory expresses more than this; he speaks not alone of the *quantity*, but of the *quality* of the fibrin. On this point we might easily be led away into theories for which this is not the field of discussion. It is

sufficient for our purpose here to remark, that, in its history, phthisis appears to furnish evidence that an increase of fibrin in the blood is one probable cause of the disease, and this corroboration of an experimental observation, is found in the following occurrences.

Its early symptom and well-sustained feature throughout its whole course is *wasting*. To this purely muscular waste is to be added the destructive waste from deficiency of the ultimate processes by which blood is converted into tissue, and that of *secondary assimilation*. A malnutrition, in its highest sense, will leave the blood overladen with depraved material. It is also to be remembered that the lymphatic system is a feeder of the blood, and that the depurative organs may not be able to counteract, by secretion or oxydation, the perpetually recurring influx of altered constituents which a disease like tubercle, when once established, will, in its natural destruction and decay, present, through the lymphatics, to the circulation. All these are sources of contamination. Now, this waste of tissues will either hyperfibrinate the blood, or it will find an exit in the secretions, or it will be oxydized in the lungs. The solid constituents of the secretions are not perceptibly increased in consumption, and the respiratory space for decarbonization is greatly diminished by the tubercular deposit. Hence a recurring and daily increasing source of fibrinous superfluous material. The phenomena of phthisis in pregnancy favour this supposition, as already noticed.

I should be far from offering this explanation of varied phenomena as one sufficiently proved to take its place amongst our physiological facts, but the bearings of this theory on our practice should not be lost sight of, as it leads us to class tuberculosis with disorders of the blood constituents which lower the vital tone of the system. It is true that local acute inflammations increase the fibrine of the blood, but it is to be remembered that they do not alter its *quality*, for on this alteration depends the pathological import of phthisis. An inflammation terminates in a plastic deposit of fibrinous material, which becomes organized and nourished; while tubercle, in its lowered vitality, has acquired only a tendency to decay, which is inherent in its nature. The proofs which German pathologists seek to bring to bear on this theory, and which are derived from the fact, that diseases which appropriate fibrin in their growth are antagonistic to tubercle, have been before noticed; and it is remarkable that tumours and the hypernutrition of organs are very rarely coincident with phthisis.

With these remarks, which will be suggestive of varied questions to many minds, I leave this theoretical portion of our subject, but not without bespeaking for it your future study.

A lecture from this place would be incomplete without some reference to treatment; and as the argument on which we have proceeded—that phthisis is a systemic disease—receives remarkable confirmation from the results of practice, I would

devote the few minutes which remain to us to a consideration of the remedies which, in this great hospital and elsewhere, have been seen to exercise the greatest influence in checking and arresting tuberculosis. You need not be told that I refer especially to those which, by increasing the nutrition of the body, and elevating the vitality, or altering (it may be) the chemical qualities of tubercle, exert so remarkable a power in retarding the advances of phthisis. Our experience of oils is a forcible corroboration of the truth, that the disease of consumption is not merely a local affection, but a disorder of processes deeply seated in the system. Their operation has been so recently dwelt on from this place by one of my colleagues, that I need not dilate upon their importance in the treatment of phthisis. It is now well known to the profession that an increase of weight is a very constant sign of improvement in our cases treated with cod-oil. It occurred in 70 per cent. of the cases here, while in 21 per cent. there was loss of weight, and 9 remained stationary out of 100.

Dr. Prout remarks, that "the vital energies of animals, as exerted during secondary assimilation, can apparently change oleaginous matters into all the principles necessary to maintain animal existence."

Here, then, we have facts proving the use of oils as nutritives; but do they exert any further influence on the blood? There can be little doubt that they do so, and it is probable that by adding an oily ingredient to the low organization of tubercle the vitality of the latter is increased. Without any theory the practical fact remains to us as a great improvement in medicine. I may remark that I have myself caused experiments to be made on healthy animals, to the amount of some hundreds, which proved the fattening powers of cod-liver oil. These experiments are recorded in *THE LANCET*. But a still more important effect of oils on the blood has been observed; for under their use the fibrin diminishes, and the red corpuscles increase, as you will see by the following table, and that an improvement in health should coincide with such changes in the blood is not remarkable, if we bear in mind the probable pathology of the tubercular habit:—

RED CORPUSCLES IN THE BLOOD.

Increased by.	Diminished by.	
Plethora.	Anæmia.	Diabetes.
Iron.	Bloodletting.	Cachexia.
Cod-liver oil.	Struma.	Abstinence.
	Phthisis.	

Amongst other remedies, iron exerts a very powerful influence on the blood, increasing the number of red globules often from forty to ninety, as in Andral's experiments. But it exerts no apparent influence on the fibrin, and is therefore, and for other reasons, less valuable than cod-liver oil. It is inapplicable where there is rapid pulse and fever; but very useful in certain cases of a chronic character, where the patient is blanched and anæmia prevails. In the earlier stages it is

no doubt often injurious, and may even precipitate the disease if given while febrile symptoms exist in subjects of the sanguineous temperament. Other medicines of constitutional action find their place in the variety of cases which we are called on to treat, and amongst these may be mentioned alkalies. Opium and other sedatives have also a systemic action, long recognised in the treatment of phthisis, and it is important to remember that in allaying cough its *modus operandi* is double, mainly exerting an influence on the nervous irritability of the bronchial membrane, and secondarily diminishing the requirements of the blood for respiration. It may fairly be questioned also whether the gallic acid and oxide of zinc, which rapidly diminish sweating, do not act rather through the blood and nervous system than simply as pure astringents on the contractile tissues of the vessels of the skin.

Let us now glance at the remedies which act locally, such as inhalations of various character, sedative or stimulant, and local depletion and counter-irritation. By the former we may, it is true, allay irritability of the bronchial membrane; and when this exists, their use is undoubted and important: or, a local congestion may be much mitigated by topical applications to the chest; but here is their limit, and beyond this all experience shows that they can do nothing towards altering the blood condition which has produced and maintains the tubercular disease of the lung. The day has gone by for a belief in the curative powers of such means; but as the error is still in the vulgar mind, it is our duty, by taking a bold stand on our knowledge, to dispel such illusions as that an ulcer (as it is called) in the lung can be dried up by local stimulation, like an indolent wound on the leg. We can accept these means as adjuvants in our treatment, but we cannot permit them to be esteemed as remedies which counteract the tubercular habit. And so of climate—that much-disputed question, and long-overrated agent in the relief of consumption. An experience of some years in Italy, and a residence in many of the principal southern places of resort for invalids, enables me to speak with some confidence on this subject. What do we propose by removing a patient with tubercle in the lung to a foreign country? We select a sedative air, such as Rome or Pisa; and some have believed that the deposit in the lung was to be removed, and the open cavity or softening tubercle healed up, by the effects of a mild atmosphere! If the disease we have to treat were an irritation of the bronchial membrane, or a local inflammation become chronic, we might expect some relief from such means; and in pure bronchitis, or where cough is a *complication* of phthisis, we do indeed meet with remarkable results from change of air. But what of the cases of rapid tubercle, quickly developed, progressively sinking, with hectic and wasting of the tissues? The climate we have selected as remedial, itself produces these as from a hotbed; and it were far better to let Englishmen die in English land, than cruelly to separate them

from home and friends, that they may perish miserably as exiles, with long-defeated hopes, and a final awakening to the unreasonableness of our ignorant mistake.

But some will say that the chronic cases, with slight fever and but slow wasting, and moderate pulse, do well; and I willingly bear testimony to this, for I have seen many such rally in health when in Italy, and return home with impunity. But let us examine why it is that they improve. And here, to such an audience, it is needless to dwell on the fact that change of air, of scene, and of diet, and complete alteration in habits, have a remarkable effect in strengthening the vital powers and in improving the nutrition. Therefore, let us still export such cases, but not with a view to curing a local disease by the local application of a sedative air, for with a wrong theory at bottom we are sure to be disappointed in practice. With other views than these, we can select, as the most proper for each individual case, the kind of climate best suited to the requirements of his system; and here the higher skill of the physician is indeed manifest. To some the bracing air of the mountain,—of Alps or Pyrenees,—or even the icy climate of Sweden or Norway will be the best remedy for a lowered vitality; to others the calm skies and clear, sedative air of Rome will give greater vigour. With enlarged views of the disease we have to treat, a wider range of remedies comes at our disposal, and the deeper our knowledge of men and of nature, the more precise and satisfactory will be our practice and its results.

I am here obliged to pause in this rapid and imperfect sketch of a disease which, in its multi-form relations, in its deeply-seated causes, and in its enormous fatality, has opened such a large page of pathology, that, in considering only a part of its topics of interest, we enter on fields of research in which the most ardent student will find a study for years.

Before concluding, I would again recall to you the portion of this great subject to which I have directed your attention in these lectures. I have sought by a chain of inductive arguments to prove that phthisis is a constitutional affection with local developments, rather than a local disease with sympathetic disorder of the system. We have, as I believe, traced this fact, in its early symptoms, its progressive character, its successive attacks, and its various terminations. We have sought to find this general character in the *systemic* meaning of its symptoms, in its analogies, and by comparison of its features with those of other blood disorders. In the *non-allied affections*, so rarely seen combined with it, we have found a support to the same view, and we have compared our facts, and only our observed facts, with the theories of the day. In the *negative* influence of the seasons of the year, of occupations, and social causes; in the absence of proof that depressing agents lead distinctly to this rather than to other chronic diseases, we have perceived a necessity to look deeper for its originating causes. We have further observed, in the action of the best

accredited remedies, such decided evidence of their improving powers coming through a general, rather than a local influence, that our argument has been in no slight degree strengthened by these researches into treatment.

In the effects of climate, its disappointing results in some cases, and its mode of improving vital actions in others, we recognise a similar agent to those medicines which exalt the animal nutrition. Finally, the theory most akin to modern pathological truths has been stated, but not insisted on, for undue or untimely conclusions on such questions, are the readiest means of shutting the door to further knowledge, and are apt to beget in us the indolent confidence inspired by an accomplished task.

In conclusion, and while thanking you for your attention, I will not apologise for having placed before you old facts and familiar statements; for out of these well-worn materials must arise our future improvements. No sudden discovery is to light up this toilsome work with a brilliant and satisfactory theory, but an advanced pathology, helped by industrious observers, is sure eventually to achieve for us in this department of science a far nearer approach to truth than we are as yet able to discern even with our best powers.

Should this hospital become, as I trust it may, not only the field for investigations into the nature of tubercle, but the school in which its phenomena may be best studied and taught, we may be the humble workers towards greater results than yet appear even possible; and, finally, our successors in this task may, in their turn, be assisted by the materials accumulated in so large a field of observation.

Original Papers.

MATERIALS TOWARDS THE FORMATION OF A BETTER KNOWLEDGE OF HYDROPHOBIA.

By J. NETTEN RADCLIFFE, Esq., M.R.C.S. ENG.

(Continued from Nov. No.)

In 29 of the cases there was more or less *sensitiveness of the surface* to the impression of currents of air, or to the touch.

Thus—(1), the patient complained of the wind causing him uneasy and disagreeable sensations; (2—6), there were great sensitiveness of the surface, and fear of the impression of currents of air; (7), a sensation of suffocation was excited by currents of air and by light, and at the same time there was a desire to vomit; (8), currents of air excited spasm; (9), excessive sensitiveness of the surface excited by currents of air; (10), similar excessive sensitiveness of the surface; when the patient was slightly blown upon by the physician, he started aside in terror, and exclaimed that it was sufficient to move a 74-gun ship; (11), the skin was so exquisitely sensitive that the mere passage of a fly across the face, without touching the skin, excited a paroxysm of convulsions; (12), when the attendants or persons present moved by the bottom of

the bed, the patient screamed, and retired to the furthest corner; (13), the surface was so sensitive that the patient could not endure the slightest touch, unless coaxed, when he could bear touching slightly; (14), the patient could not endure the slightest current of air to blow on his throat and cheek, as it excited pain, and convulsion of the muscles of deglutition; (15), the patient had horror of any movement of the air; (16), approaching the patient, or even speaking, excited convulsions or cries; (18), draughts of air caused a sensation of suffocation; (18), currents of air caused shivering and a sensation of suffocation; (19), currents of air induced paroxysms of convulsive movements; (20), the patient was terrified at draughts, they caused convulsive sobbings; (21), the patient started convulsively if the wrist was touched, and said it was the coldness of the toucher's hand that startled him; (22), the patient could not endure any draught of air; the patient had great horror of currents of air, or of the approach of any person towards him; (24), the opening of doors, and even the passage of flies across the patient's skin, excited a paroxysm; (25), the sensitiveness of the surface was so great that the passage of the hand before the patient's face, when the eyes were closed, caused a feeling of suffocation; (26), on touching the patient's wrist, he screamed with horror; (27), while the patient's attention was absorbed by a strange countenance, he allowed the pulse to be examined without shrinking; a sudden movement of the surgeon destroyed the abstraction, and on attempting again to place the fingers on the wrist, the patient shrank back, uttering an expression of terror, and speaking in a peculiar, rapid, and sharp tone of voice. On breathing slightly on the patient's chest, a series of peculiar rapid and fleeting convulsions were excited in the muscles of the thorax, gullet, and face, causing him great agony, and he shrieked "Don't, don't! I can't bear it!" (28), The patient complained of the cold air if the bedclothes were moved; (29), the patient was much frightened if anything cold touched the surface.

An excessive sensitiveness was occasionally manifested in the senses of *sight* and *hearing*. *Intolerance of light* has already, in several cases, been mentioned as a symptom.

The morbid condition of the *eye* and the *ear*, in 20 cases, was shown in the following manner:—

(1), The patient could not endure the light of a candle; (2), the patient was acutely sensitive to light and sound; both caused much agitation; (3), luminous objects, mirrors, polished tin, a candle, and also noises, alarmed the patient; (4), mirrors or a lighted candle excited paroxysms; (5 and 6), the patients could not endure the sight of bright objects; (7), white or shining bodies excited paroxysms of convulsion of the muscles of deglutition; (8), the patient was agitated at the sight of glass vessels; (9), the patient could not endure the sight of bright objects, and the repetition of the word "sharp" by an insane patient in the same ward, annoyed him so much

that he threatened to tear him in pieces; (10), the light of a candle was exceedingly disagreeable to the patient; (11), the patient could not endure to look on silver; (12), the patient had an aversion to several white objects, but the whitewashed walls of the room did not affect him; he had an aversion to hats, and on seeing one in the hand of the medical man, he shrieked out for it to be put aside, and at the same time made an effort to push it away, the effort being singularly exaggerated; (13), certain noises and objects caused the patient terror—e.g. the barriers of the "cachot" and the closing of the iron gates of the hospital; (14), noise fatigued the patient; (15), the least noise startled the patient; (16), the patient could not endure the sound of speaking; (17), the patient complained of noise; (18), speaking within hearing of the patient excited convulsions; (19), a person present blowing his nose the patient was greatly terrified at the sound; and (20), the barking and howling of dogs caused a sensation of suffocation, pain, and dyspnœa.

In one case there was blindness four days before death.

The *convulsive affection of the muscles* was not confined to the muscles of deglutition and respiration, and to the form of convulsion which we have already detailed. In many cases other muscles were affected, and general convulsions occasionally happened.

In 41 of the cases, the convulsive affection assumed the following forms:—

(1), convulsion of the angle of the mouth; (2), convulsive grinding of the teeth; (3), convulsive movements of the face, upper extremities, and trunk; (4), spasmodic movements of the muscles of the chest and retraction of the lips; (5), contraction of the muscles of the abdomen and chest; (6), continual trembling; (7), violent convulsive gesticulations; (8), contraction of the muscles of the neck; (9), tetanic seizure; (10 and 11), tetanic spasm of the leg; (12), general jactitation and convulsion; (13), handling of the bedclothes without object, jactitation of body, distortion of the mouth on the same side as wounded; (14—20), general convulsions during the progress of the disease; (21), distortion of the mouth and face, subsequently violent frenzy; the patient became dangerous, endeavouring to bite and injure those about him; general convulsions supervened; (22), *subsultus tendinum*; (23), the patient throws himself into a sitting posture ever and anon, moving the limbs with a spasmodic jerk, and if not held would throw himself out of bed; these attacks occurred irregularly every four or five minutes; the patient would not spit, and when asked why, he replied, pointing, "I should be there;" (25), violent contractions of the limbs, succeeded by burning redness of the face and eyes, and convulsions; (25), paroxysms of painful convulsions; (26), convulsive contraction of the muscles of the right side of the body, the left being paralyzed; quaking, followed by a sensation of suffocation, and pain in the head;

(27), general convulsions, at first slight, but gradually increasing in violence; in the intervals every fibre quivered with tremor; (28), rigors; (29), general and partial convulsions, and tetanic "shocks;" (30), paroxysms of convulsive movements, and sensation of discharge from the urethra during their continuance, and an occasional slight oozing; (31), paroxysms of convulsive movements and fury; (32), head occasionally retracted; (33), violent convulsions of the chest; the patient threw himself quite out of bed; the sufferings were intolerable; and (34—41) in seven cases general convulsions occurred towards the termination of the disease.

In one case there was *numbness* in both arms, the right arm having been bit; in a *second* case there was loss of force in all the members; and, in a *third* case, there was palsy of the right arm.

In 72 of the cases, the condition of the *mental faculties* is indicated in the following terms:—(1—3), great agitation; (4), restless, great variability of spirits, the patient was generally quiet, but if disturbed he became furious; he could endure only the presence of one of the nurses, the sight of the others irritated him beyond measure, and he said that if they entered the room he could not be answerable for any violence he might commit. (5), Periods of delirium; (6), incoherent; (7), dreadful anxiety; (8), anxiety and distress; (9), horror and dismay; (10—14), delirious. One of the patients in his delirium struck his mother, under the impression that she was about to injure him, but almost immediately he recovered so far as to recognise what he had done, and he reproached himself bitterly. (15), Extreme restlessness; (16), incoherence; (17), persistent delirium, great fear and horror; (18), delirium; the patient walked about, pulling at his throat with great agony; he then fell down senseless, and was attacked with vomiting of "coffee-ground matters." (19—27), Increasing and frightful agitation. In one of these cases it was attended with muscular spasms. (28 and 29), Violent; (30—32), furious. One of the patients threatened to destroy himself; he was in great distress, and was continually spitting. (33), Unmanageable; the patient threatened to strike his attendants; he had erections. (34), In the absence of spasm, the patient showed a disposition to be jocose and cheerful; he then became maniacal. (35), The patient has a "confirmed opinion" that he should die; he next became incoherent, and subsequently violent. (36), The patient was afraid of being left alone, "lest he should throw himself out of bed;" (37), the patient had a desire to annihilate those about him as the cause of his sufferings; (38), great fear of everybody; (39 and 40), great and undefined fear; (41), the patient was in constant motion, running from one corner of the room to another, and up and down a flight of stairs; (41*), the patient could not endure any one to stand before, but he could behind him; (42—48), Raving continually; in one of these cases "*les accès furent terribles*." (49), Raving occasionally; (50 and 51), raving, but could be

recalled temporarily to themselves; (52), tranquil delirium; (53), intervals of sensibility, during which the patient talks incessantly; (53*), the patient was extremely affectionate towards relations and friends, then he would burst into a torrent of reproaches against them, and anon regret that he had done so; (54), the patient was irritable and suspicious, and had a dread of his physicians: "He soon, however, became reconciled to our presence, and began to converse with us. We observed that in talking he rolled his head round and round in a peculiar manner, and stammered as if he had been intoxicated, but his expressions were perfectly distinct and proper. The cat passing and repassing under his chair made him start up and rebuke the animal peevishly; but he immediately apologised for being *so fractious*. Being questioned as to the impression which our first visit had made upon him, he acknowledged that an idea had come across his mind, that we might, perhaps, have some *queer instruments* about us, and that some experiment might be tried upon him; but he added that, finding it was not the case, he felt great pleasure in our company. He took his bolus before us with great self-command; but in the act of swallowing he had a convulsive paroxysm, very much resembling those which occur in tetanus, his body being drawn backwards with great violence. He bit his tongue severely during this paroxysm. There was no foaming at the mouth, but he continued to be much annoyed by the viscid saliva before mentioned. We again examined his throat and fauces, and could discover no unnatural appearance. He drank several teaspoonfuls of mint tea, and apparently with much less pain than he had experienced in swallowing the last bolus. On being asked whether he could gargle, he instantly fell into a violent fit of suffocation, and exclaimed on recovering his breath, 'Not for a million of money!' On perceiving a small insect crawling across the table, he jumped out of his chair and appeared much agitated. A drop of water being sprinkled on his face unawares, he sprang up with a convulsive start, and then said, in a tone which made us regret that the experiment had been tried, 'Indeed, gentlemen, this is not fair;' immediately after which, however, the poor man apologised for his rudeness, and said he was convinced that all we did was for his good. The pulse varied from 104 to 116, and the bowels continued costive; he had no pain in his stomach or head, nor any inclination to vomit. He complained a good deal of the pain in his shoulder, and of the peculiar sensation in the urethra" (a sensation as if urine had been discharged) "He appeared still coherent and distinct in his ideas; but some of his perceptions were considerably disturbed. His sight was not materially impaired, for he could tell what hour it was by looking at the clock; but he often fancied he beheld objects which were not before him. He thought, for instance, that he saw various insects and reptiles crawl about him. 'My eyesight is queer,' said he; 'I

think I see strange animals,' &c. Once or twice he exclaimed, in an accent of terror, 'Who is pouring cold water down my head?' yet no one was near him."—*Dr. Marcet*. (55), Errors of vision; the patient fancied she saw the hair which shaded her forehead, and when her mother feigned to cut it she shrank back in terror, exclaiming, "Maman tu fais comme le chien!" (56), The patient fancied she saw mice and other animals running about the room. (57), The patient stated that she heard bells, and that she was terrified by the vision of a mad cat; (58), harassed by hallucinations of witches, dogs, &c.; (59), visions of chariots in the clouds. (60), Great excitement; the patient was annoyed by a spectral dog. (60), The patient thought there was a man under the bed. (61), The patient's countenance and manner was strangely marked with horror and anxiety. His sight was disordered; he thought there were a number of flies about him, and this made him uneasy. 'Why don't you kill these flies?' he would cry, with a great degree of impatience; and then he would strike at them with his hand, and would shrink in the bed, as though he were afraid of them getting to his face." (62), The patient thought that multitudes of men marched around him. At one time he left his bed, and, applying his hand to the wall, stated that he had killed a thousand bugs. He could be recalled temporarily to himself when spoken to. (63), Aged seven years: foolishness; occasional paroxysms of fury, with threats to effect injury. (64), Erotic delirium; obscure words; the patient said that he felt "les jouissances du coït." (65), The patient was quiet. He got out of bed, seated himself with his back to the wall, and refused to be moved. "Mind collected." (66), Intelligence perfect; (67), sensible; (68), memory clear and imagination more lively; the patient wished to hide the cause of his accident. (69), Talked sensibly to the last; (70), reason all along very good; (71 and 72), reason untroubled.

In seven cases the patients are described respectively as being—

(1—3), Talkative and irritable; (4), talking incessantly; (5), very talkative; (6), continually talking; and (7), talking incessantly in a quick, sharp tone.

In several cases the voice and utterance were marked symptoms of the condition of the nervous system. The following terms are used to describe these symptoms in 9 of the cases:—

(1), An impertinent tone; (2), impetuous; (3), a precipitous tone of voice; (4), a hurried utterance; (5), speech rapid; (6), voice quick and peremptory; (7), hasty; and (9), voice strangely altered.

The pupils of the eye were dilated in 10 cases, remarkably so in one; dilated and subsequently contracted in one case, and contracted in another case.

The state of the pulse is described in 34 of the cases in the following terms:—

(1), When the patient was first seen it was "very quick and irritable," and shortly after, on a second examination, it was "130, sharp;" (2),

very quick and irritable; (3), at eleven A. M. it was beating at 96; at two P. M. from 100—120, a little intermitting; (4), intermitting; (5), 108, small; (6), 120—136, feeble; (7), 88—120, irregular; (8), accelerated; (9), 150, very feeble, subsequently weak and rapid, about 120; (10), 100; (11), "weak and not quick;" (12), at first "quick and irregular," shortly after it became "elevated and hard, but regular;" (13), at first "soft, unequal, intermitting every three strokes;" subsequently "112, not so strong;" and towards the termination of the disease, "86, slightly jerking;" (14), 120—128, tremulous, and very variable; (15), soft, slow, and irregular; (16), when first seen, 54—60, irregular and intermittent; during the paroxysms it varied from 64 to 86, and was occasionally "sharp;" after the paroxysms it varied from 140 to 180, and was "small;" (17), at three several times of observation it was, (a), 85 "hurried;" (b), 128, visible pulsation of the carotids; (c), smaller and quicker; (18), fluttering; (19), varied from 120 to 138; (20), 72—90, weak and irregular; (21), 160—120, small, unequal, almost imperceptible from muscular tremors; (22), during the progress of the disease the pulse underwent the following variation:—(a), 76, feeble, when composed; (b), 84, feeble, very excitable; (c), fluctuating from 100—116; during a period of slumber, 100; (d), 136, tolerably strong and regular; (23), feeble, very frequent; (24), large, soft; beating of the heart, hasty and sonorous; (25), small, very frequent; (26), strong and frequent; three hours after, frequent, very strong and unequal; subsequently strong; (27), 130; (28), 70—80, full; (29), regular, then accelerated; (30), frequent; (31), 80; (32), 90; (33), 120 and full; and (34), 120—130, full.

The state of the tongue is described in 13 cases. Thus (1), it was covered with a moist, thick, tenacious, white coating; (2), moist and clean; (3), moist, protruded and retracted rapidly; (4), furred, brownish, rather dry, edges purple-red and moister; (5), white and dry; (6 and 7), white; (8), furred, dry, and parched; (9), dry, mouth parched and hot; (10), tongue milky-white, not furred; mouth dry; (11), covered with a brownish fur, subsequently white; (12), morbid red and dry; and (13), clean, fauces redder than natural.

The state of the secretions of the mouth, nostrils, and air-passages is described or indicated in 38 cases, as follows:—

(1), Copious flow of saliva; (2), copious flow of saliva; the patient spat it about in all directions; (3), spit much; visage covered with foam; (4), spit often; efforts to vomit; (5), hawking up a frothy, irritative secretion; (6), spits much, and constantly vomits; (7), continually spitting a white, frothy phlegm; (8), continually spitting about; (9), after each spasm, the mouth was filled with a frothy saliva, which the patient spat freely about; (10), great quantity of saliva, apparently bloody; (11), frothy saliva, viscid, of a brick-dust colour; (12), copious flow of glutinous, frothy saliva, mixed with dark patches of blood; (13)—

16), spit continually a foamy, viscid matter; (17—19), a thick, viscid, troublesome saliva; in one of these cases, it is stated that this secretion came on twenty-four hours after marked symptoms of the disease; (20), a yellow and tenacious saliva, separable with difficulty; (21), a yellow and tenacious saliva; "hence, when the patient opened his mouth, it could be seen adhering to the roof, but no foam;" (22), great discharge of viscid saliva, and mucous discharge from the nostrils; the patient spat so much that the bed was wetted; (23), a large quantity of saliva; bed-linen wetted with it; (24), expectoration of a viscid mucus; (25), excessive secretion of tenacious mucus; (26 and 27), a viscid, frothy mucus flowed from the mouth in profusion; (28), a large quantity of ropy saliva; (29), saliva viscid and annoying; the patient exclaimed, "Oh, do something for me; I would suffer myself to be cut in pieces; I cannot raise the phlegm, it sticks to me like bird-lime;" (30), constantly spitting a frothy matter; (31), a small quantity of spummy matter detached with difficulty; the mouth dry; (32), often spitting up some mucus, which, when detached, seemed to relieve him; (33), abundant secretion of saliva; (34), saliva viscous, remained adherent to the lips; (35—36), abundant secretion of saliva; (37), saliva abundant, but the patient expectorated with difficulty; (38), spits rarely; and (39), excessive discharge of mucus from the nostrils.

In 15 of the cases, the patients complained of great *thirst*.

In 17 of the cases, it is stated that, respectively, there was—(1), vomiting and faintness; (2), retching and occasional ejection of a matter like "soap-suds;" (3), vomiting of matter like black blood; (4), "sickness at the stomach," the patient being hot and feverish; (5), convulsive retchings and faintings; (6), incessant vomiting of a dark-coloured matter; (7), constant retching and vomiting; (8), constant retching, and attempts to spit upon persons near; (9), vomiting of a dark-coloured matter; (10), sickness; (11), retching; (12—14), nausea; (15), flatulence; (16), vomiting of grumous matters; and (17), vomiting of a frothy and colourless liquid.

The condition of the *surface* is recorded in 10 of the cases. In these cases it is said to have been—(1), moist; (2), warm; the extremities cold; no perceptible perspiration; (3), hotter than natural; the patient complains of chilliness and cold; (4), skin cool, (5—6), bathed in perspiration; (7), extremities cold; head and trunk humid; (8), perspiring; (9), cool; and (10), bathed in perspiration.

In 14 of the cases, the *bowels* are described as being, respectively—(1—5), costive; (6), free; (7), regular; (8), acting freely; stools of a dark olive colour, and very fetid; (9), the bowels acted two or three times; the motions were dark; (10), slight feculent motion; (11), the patient had a dark stool; (12), bowels acting; motions dark and fetid; and (13), the patient had a copious evacuation.

In 5 of the cases, it is stated of the *urine*, that—(1), it was diminished in quantity; (2), it was scanty; (3), none was known to be passed; three

ounces were found in the bladder after death; (4), it was scanty; and (5), it was free.

In 11 of the cases, it was stated that there was—(1—7), sleeplessness—in three of these cases from the commencement; (8), disturbed sleep; (9), refreshing sleep, followed shortly by an increase in all the symptoms; (10), some sleep; the patient felt better after it, and jested at all her fears, attributing the attack to terror excited by reading an account of a case of hydrophobia in the public journals; but on attempting to get out of bed, she was seized with "spasms;" and (11), there were slumberous intervals, from which the patient awoke with a convulsive start, and in great agitation; his sufferings were not relieved by dozing, "for," said he, "whilst dozing, I could hear; it was not like sleep."

A marked *abatement of all the symptoms* occurred during this, and previous to the last stage of the disease, in 6 of the cases. In one of these cases, where there had been impossibility of drinking fluids, the patient became capable of drinking through a pipe. In another case, the apparent improvement was so great, that the patient attributed his illness to fright; and in a third, an extreme fear of liquids and difficulty of drinking passed away altogether.

Of 14 of the cases it is recorded, respectively, that—(1), the patient became somnolent, and subsequently insensible; (2), the patient complained of "oppression" at the lower part of the sternum; (3), there was pain in the epigastrium; (4), pain in the head; (5), pains in the back and nape of the neck; (6), the patient complained of great prostration, and a sensation as of the rising of a ball in the throat; (7), the patient hawked up phlegm with a peculiar sound; "it was different from common hawking. This sound varied also at different times, being at some times much sharper than at others, and being frequently repeated, sharp and quick and sudden, as every other motion of his body was; a warm imagination might consider it as barking or yelping like a dog." (8), There were erections of the penis, and the patient complained of uneasy sensations in the urethra. On examination, the orifice of the urethra was found inflamed, and a few drops of yellowish fluid had been discharged. (9), There was priapism towards the termination of the case; (10), there was semi-priapism; (11), the penis was erected, and "hard as a bone," all the time; (12), the patient had a desire for intercourse with his wife; (13), the patient feared lest he should pass his motions in bed, and he had a great desire for air; (14), there was extreme pain in the head shortly before death, and the patient requested that it might be firmly pressed.

The symptoms ushering in *death* are described in 53 of the cases as follows:—

(1), Death was preceded by exhaustion and one or two violent expirations; (2), collapse, death; (3), collapse, death; (4), paroxysms of panting and sobbing, difficulty of swallowing; incoherence, exhaustion, death; (5), pulselessness, coldness of the surface, congestion of the face, a pa-

roxysm of spasm, death; (6), coffee-ground vomiting, coldness of the surface, clammy sweats, collapse, death; (7), pulse too indistinct to be reckoned, irregular, and weaker; clammy perspirations, delirium, strabismus, pupils excessively dilated, "sinks apace," death; (8), cold sweats, death; (9), outrageous, "laid him down quite spent, and he died;" (10), spasm, pulseless for five or six hours, quick laborious breathing, death; (11), after raving violently, and requiring restraint, he suddenly became quiet and motionless, lay rather more than half an hour in this condition, and then expired without a struggle; (12), violent raving and convulsions, exhaustion half an hour after, death; (13), strong convulsions; a little while after, the patient died, "with a smile on his countenance;" (14), body covered with sweat, pulse feeble and frequent, violent delirium; the patient struck the bed, exclaiming, "Je la tiens, cette bête noire!" and expired; (15), became adynamic, which persisted until death; (16), complete prostration; (17), pulseless, eyes dilated, respiration irregular, skin cold, access of convulsions; reaction, the patient became sensible, pulse 96, mucous râles, death; (18), extreme prostration, intellect unclouded, death; (19), gradual sinking, complete collapse, pulse indistinguishable, revived a little, paroxysm of spasm, collapse, death; (20), paroxysm of spasm, debility, conscious to the last, death; (21), faintings, convulsive twitchings, death; (22), got up, walked into the garden, returned, lay down, and died; (23), took an affectionate farewell and died; (24), getting weaker, sleeplessness, difficulty of drinking and carrying a vessel to the mouth continued to the last, the pulse faltered, and he died without a struggle; (25), became feeble, voice changed, face covered with drops of sweat, eyes very sensible to light, pulse weaker than natural, died at the commencement of a paroxysm; (26), weaker, paroxysm frequent but less violent, pulse 160, "died quite exhausted;" (27), sunk back exhausted and suddenly expired; (28), ghastly and shrunk countenance, insensibility, death; (29), pulse began to fail, quietude, death; (30), skin cool, pulse fluttering, vomited a little blood, died in convulsions; (31), pulse scarcely perceptible, no sleep for forty-eight hours, convulsions, death; (32), pulse feeble and reckoned with difficulty, general muscular tremor, slight delirium, death; (33), expired tranquilly, saying that she felt "she should die and regretted her faults;" (34), exhaustion, convulsions, death; (35), an accession of spasms of shorter duration, and the patient died *doucement*; (36), after a violent paroxysm the patient lay on his back and breathed calmly; the pupils were dilated; he spat several times towards the ceiling, and after twenty minutes expired; (37), complete derangement of the intellectual faculties, pulse and heat gradually diminished, death; (38), exhaustion, death; (39), died in convulsions; (40), died during a violent spasm; (41), died after a paroxysm of convulsions; (42), appeared as if strangled; (43), died in a paroxysm of convulsions; (44), skin cool, vomited a little blood, pulse fluttering, died in con-

vulsions; (45), died comatose; (46), maniacal during a paroxysm became pulseless, fell back in a state of asphyxia, and expired; (47), tetanic convulsions, death; (48), death was preceded by great excitement; (49), died in a paroxysm of frenzy; (50), complained of pain in the arm and a little difficulty of swallowing; sat half an hour in a warm bath; became restless and died, retaining the senses until the last; (51), a few moments after drinking, "a movement of regurgitation occurred, the respiration was embarrassed, pupils dilated, the head thrown back, the pulse failed, and death occurred. At the same moment the muscles of the limbs contracted; the pelvis was agitated with the convulsive motions; and an abundant ejection of sperm took place, the scrotum being retracted but the penis flaccid." (52), "The patient was in continual agitation; his body was covered with a cold perspiration, and his shirt was moistened with it; the voice was enfeebled; the pulse small and very feeble, scarcely perceptible, spite of the agitation of the patient; the countenance was dejected; he spat continually a foamy mucus, which appeared to come from the throat, and to be expelled by a strong expiration; he died a quarter of an hour afterwards." (53), Died on the fourteenth day, of pneumonia.

Post-mortem Appearances.

The following is an account of the morbid appearances found in the post-mortem examination of 46 cases of communicated hydrophobia:

Brain and Nervous System.—Abnormal appearances were found in the dura mater in 8 cases. In 6 of the cases the morbid change consisted of more or less injection of the blood-vessels of the membrane, and it is respectively described thus: (1), injected; (2), meningeal vessels more turgid than usual; (3), extreme injection, the membrane firmly adherent to the skull; 4, enormously vascular; (5), preternaturally injected; (6), "enormous vascularity, whether arterial or venous system be regarded, the arborescent appearance of the former being beautifully distinct and general, whilst the engorgement of the latter was most apparent at the posterior parts, probably owing to position."

In one case the dura mater is described as being very adherent, and in another a little serum was found beneath the membrane.

Abnormal appearances were found in connexion with the arachnoid in 10 cases. These appearances are described as follows:—(1), The tunica arachnoidea exhibited "such a degree of vascularity as I never witnessed in any other case, not excepting those of the most acute meningeal inflammation;" (2), the membrane was "more distinct;" (3 and 4), slight opacity, with a little effusion beneath; (5), opacity; (6), slight and partial thickening; (7), of a pale rose colour, adherent to the dura mater in the head and vertebral canal; (8), of a slight roseate tint; (9), a small quantity of fluid in the sub-arachnoidean space; (10), a great quantity of serosity in the sub-arachnoidean cavity.

Abnormal appearances were found in connexion

with the pia mater in 16 cases. Thus—(1), the membrane was “slightly congested;” (2), it was injected; (3), “bright red;” (4), injected, of a bright red colour; (5), gorged; (6), more gorged than natural; (7), extremely vascular; (8), “vascularity itself, bright scarlet, not of congestion, but of inflammation;” (9), “lively red in all its extent, where it covered the cerebrum, and penetrated into the fissures of Silvius. Its capillary reté was a little less injected around the cerebellum, and it was not sensibly injected around the spinal column. The redness of the pia mater was scarlet at the superior part of the left hemisphere and the inferior part of the anterior lobes. A layer, apparently of gelatiniform matter, hid the substance of the brain at the level of the left temporal fossa; it disappeared, and a limpid serosity ran out, when I divided with the scalpel the pia mater.”* (10), “The pia mater was injected with much blood, in all that portion which surrounded the brain and which penetrated its fissures; spots of a scarlet-red, one or two inches in diameter, of an irregular and not circumscribed form, existed upon all the faces of the brain; around the optic nerves the pia mater appeared largely ecchymosed.”† (11), “A thick layer of jelly-like appearance covered the surface of the brain; puncture of the pia mater caused to run out a large quantity of serosity infiltrated in its tissue, and the jelly-like layer disappeared. The capillary reté of the pia mater was injected after such a fashion, that the membrane was red in all its extent; it was more so towards the fissures of Silvius and around the anterior prolongation of the medulla oblongata.”‡ (12), The pia mater was gorged with blood throughout its extent;”§ (13), the pia mater is described as “infiltrated;” (14), as distended with serum; and (15 and 16), there was effusion between the pia mater and arachnoid.

The velum interpositum was found more vascular than usual in one case, and in another it is described as being “loaded.”

The choroid plexuses of the lateral ventricles were found more or less altered in appearance in 12 cases.

(1—3), They are described as being “turgid;” (4), “gorged;” (5), “reddish-coloured;” (6), of a “brownish-red” colour; (7), dark-red; contained a few vesicles; (8), unusually dark in colour; (9), large and dark-brown; (10), pale, (the only morbid appearance found in this case;); (11), unusually pale; (12), a firm tubercle, the size of a split pea, was found in one of the plexuses.

The choroid plexus of the fourth ventricle was found very conspicuous, and of a reddish-brown colour in one case.

The sinuses of the brain were much distended with blood in four cases, and in one of these cases the blood had coagulated in the lateral sinuses. A clot was found in the longitudinal sinus in one case.

Abnormal appearances were found in the hemispheres, and at the base of the brain in 33 cases.

(1—4), The hemispheres were “injected;” (5), the hemispheres were “hard and injected;” (6), the veins of the surface of the hemispheres were much distended, and the number of bloody points increased; (7), the “vessels of the brain” were gorged with blood; (8), there was “increased vascularity of the brain;” (9), the “vessels of the brain” and choroids of the eyes were “full of blood;” (10, 11), there were many bloody points on slicing the hemispheres; (12—14), the hemispheres were firmer and pinker, many bloody points on slicing; (15), there was a slight rose tint of the grey substance of the cerebro-spinal system throughout; this was the only trace of lesion found in the nervous system, except that the cerebellum appeared softened; (16), the hemispheres were softer, red points numerous; (17), hemispheres a “little softer” than natural; (18), the hemispheres were rather soft; (19), the hemispheres “were soft, and infiltrated with bloody serum;” (20), the grey substance of the hemispheres was soft and injected; (21), the hemispheres were soft and turgid, with a blush of red; (22), the base of the brain was a mere pulpy mass, and there was increased vascularity of the cerebrum and medulla oblongata; (23), a patch of extravasated blood, about the size of half a sixpence, was found on the posterior lobe of each hemisphere; (24), the base of the brain was congested, and there was some effusion; (25), the membranes were adherent to the base of the brain; (26), the vessels at the base of the brain were much congested; (27), the left thalamus opticus was pinkish, and somewhat softened; (28), the corpora striata, optic thalami, base of the brain, cerebrum, cerebellum, and the crura cerebri et cerebelli were preternaturally injected; (29), there was a lenticular ecchymosis in the centre of the annular protuberance; (30), more fluid than natural was found in the lateral ventricles; (31), a tablespoonful of fluid was found in each lateral ventricle; (32), there was half an ounce of serous fluid in the ventricles, and (33), the ventricles were dry.

The brain and its investing membranes, in three of the cases, are stated to have been perfectly healthy in every respect.

The cerebellum was found highly vascular in one case: it was softer in consistence than usual in two cases; and, in a third case, it was thought to be softer.

Abnormal appearances were found in connexion with the spinal cord and its membranes in nineteen cases.

(1), There was increased vascularity of the membranes generally; (2), florid vascularity of the theca as far as examined, a tissue of vessels, gorged with dark venous coloured blood, lined the walls of the canal from the occipital foramen to the fifth dorsal vertebra; (3), adhesion between the membranes of the cord and the bony canal, from the third cervical vertebra, and a gelatinous deposit “in the theca” from the third to the fifth cervical vertebra, and a still thicker deposit of a similar nature from the last cervical to

* Trollet. *Nouveau Traité de la Rage*: Observations 1, 2, 4.

† Ibid.

‡ Ibid.

§ Ibid.

the seventh dorsal; (4), the membranes were slightly injected in the dorsal region, and in the vicinity of the lower cervical nerves, with spots of extravasated blood; (5), the membranes were covered with injected blood vessels, and there were some spots of extravasated blood in the lumbar region; (6), the membranes were vascular, an ounce of serum escaped from the sheath on its being opened; (7), the whole of the cellular membrane between the theca and the parietes of the canal was loaded with suffused blood, which, in several places, lay in black coagula; the vessels of the cord were turgid, particularly those accompanying the nerves; (8), the membranes were distended with fluid, otherwise they were healthy; (9), a considerable quantity of serous matter escaped from the theca vertebralis; (10), the whole of the spinal cord was inflamed, and opposite the two last cervical and two upper dorsal vertebræ the cellular substance was studded with dark patches of coagulated blood, the theca was thickened; (11), there was a blush of redness in the cineritious matter of the cord; (12), there was redness on the right side of the cord, also of the medulla oblongata, slightly increased vascularity of the cord; (13), the cineritious matter of the cord was injected opposite the four upper lumbar and four lower dorsal vertebræ; (14), the substance of the cord was softened; (15), the cord was softer than usual in consistence; (16), the membranes of the cord were softened in consistence; (17), blood was extravasated opposite the ninth dorsal vertebræ; (18), the rachidian veins were gorged with blood; and (19), the arachnoid of the cord was injected, and it contained serous effusion.

The medulla oblongata and pons Varolii were found injected in four cases. In one of these cases the injection was very slight; in another it was more marked near the region of the auditory, facial, pneumogastric, glosso-pharyngeal, and hypoglossal nerves; and, in a third case, there was "inflammation of the pia mater covering the medulla and pons."

The ulnar nerve of the bitten limb had, in one of the cases, a vascular appearance in the upper arm and axilla; the same appearance, more marked, was also observed in the opposite limb. In another case the membranous investment of the origins of the eighth and ninth nerves were found injected. In a third case, a general blush of inflammation marked the par vagum; the sheath of the nerve was covered with injected blood vessels, as also were the sheaths of the fourth, fifth, sixth, and seventh nerves. Some of these nerves resembled muscular fibre in colour and appearance, as did also the branches of the cutaneous nerves leading from the cicatrix. The deep-seated nerves of the arm showed no lesion. There were evident signs of inflammation at the origin of the filaments of all the cervical spinal nerves exposed, but not at the origin of the lumbar nerves. In a fourth case, the semilunar ganglion was of a red colour, and the branches communicating with the spinal nerves.

Mouth, &c.—Morbid appearances were observed on the tongue in 8 cases:—(1), the papillæ at the back of the tongue were much enlarged; the papillæ were more developed than usual; (3), the papillæ were prominent; (4), the papillæ at the base of the tongue were greatly enlarged; the tonsils also were much enlarged, and contained a thick mucus; clusters of hypertrophied mucous follicles, having a grey appearance, were situated on each side of the under surface of the epiglottis; (5), from thirty to forty pustules were found on the tongue; they were very close together, flattened and depressed in the centre like small-pox pustules; (6), the glands of the tongue and fauces were enlarged; (7), the mucous membrane under the tongue was much inflamed; and (8), the tongue was large, clean, impressed at the edges with the marks of the teeth, and a little ecchymosed at the point.

The mucous membrane of the palate was inflamed, and lined with a kind of false membrane in one case; in a second case it was red and covered with a sanguinolent saliva; and in a third it was inflamed.

The salivary glands were found filled with a dark liquid blood in one case, and they were red and gorged with blood in another.

(To be continued.)

ON A CASE OF HYSTERIA, SIMULATING HEART DISEASE.

By PHILIP BURROWES, Esq., M.R.C.S.,
SURGEON TO THE LONDON CITY MISSION.

I WAS requested, some time ago, to see the daughter of a solicitor. Her father informed me that she was laboring under "heart disease." She was seventeen years of age, with fair hair, blue eyes, and florid complexion. Her usual state of health had been good up to 1849, when she had a severe illness, but I was unable to learn what its nature was, with the exception that she lay in a state of insensibility for two days, suffering more or less from the symptoms until the period she came under my care. The catamenia appeared at fifteen, but have never been regular as to time or quantity, sometimes two months elapsing between the periods, the quantity being small, and colour paler than natural.

When I first saw her, she complained of great pain over the entire cardiac region, greatly increased by pressure, so much so as almost to preclude the stethoscopic examination; decubitus more easy on the left side; pain and heart's action increased by turning round; dyspnoea distressing; heart's impulse slow and laboured, increased in extent so as to be heard above the clavicle on the right side; apex of the heart somewhat lower than natural; first sound dull and prolonged, with a slight blowing murmur over the second cartilage on the right side, second sound natural; rhythm of the pulse regular, and beat corresponding with the heart's; there is no venous murmur; heart's dulness augmented in area; carotid pulsation visible;

dull, aching pain over the forehead; no muscæ volitantes or visual illusions of any kind; tongue clean; bowels confined, which is usual with her.

She was ordered six leeches over the cardiac region, and the bleeding to be promoted by warm fomentations; the bowels were evacuated with infusion of senna and Rochelle salts; after which, she took the following draught three times daily: Bicarbonate of potassium, ten grains; tincture of hyoscyamus, half a drachm; hydrocyanic acid (Sch.), two drops; cinnamon water, one ounce. The diet to consist of boiled mutton and stale bread, with cocoa or milk for breakfast and tea, but no tea or coffee.

Under this treatment, the heart's action was quieted, the dyspnoea decreased, the pain was lessened, and after continuing it for ten days, five grains of the ammonio-tartrate of iron were added to the draught, and the potash omitted. I kept her on this plan for three weeks, at which time I discontinued my attendance. The heart's action was then moderate, the pain entirely gone, there was no dyspnoea, and the murmur could only be heard at times. I requested particular attention to diet, her bowels, and the gradual discontinuance of the medicine.

I had ceased my attendance on her for about ten days, when I was again requested to see her, (April 15th, 1851,) and found her in a most violent paroxysm, tearing her hair, beating the bed, and throwing everything from her with the greatest possible force. Her mother told me she had been silent for two days, during which time her bowels had been confined, when she suddenly, and without giving any warning, fell into the state in which I found her. The face was flushed, but there was no foaming at the mouth, and the spasmodic actions were irregular; occasionally there was a slight attempt to laugh and talk, but she was totally unconscious of everything passing around her; the abdomen was highly tympanitic. I ordered her twenty drops of Battley's sedative solution, in camphor mixture, every two hours, as long as the paroxysm should last, and an enema of assafoetida and turpentine. On seeing her again in three hours, she was more calm and composed; sensibility was in a great measure returned; when spoken to, she answers, and then laughs violently, and sits up, picking the clothes, and everything else that comes in her way; only a small quantity of urine passed from the bladder, high coloured, without any trace of albumen with heat and nitric acid; tongue white, and pulse feeble. Ordered tincture of assafoetida, a drachm and a half; rectified ether, a drachm and a half; Battley's solution, half a drachm; camphor mixture, three ounces and a half: mix. One ounce every four hours.

April 16th.—She is more composed; bowels still confined, and she complains of great pain in the head. To continue the mixture without the opium, and have a stimulating aperient draught immediately.

17th.—The bowels have acted twice, but there is still pain in the head, and slight indistinctness

in her articulation, with occasional muttering, although quite sensible when her attention is roused. The catamenia have not appeared for six weeks. Ordered assafoetida gum, one grain; sulphate of iron, two grains; decoction of powdered aloes, one grain; make two pills, to be taken every night. Also a draught, consisting of one drachm of tincture of valerian, half a drachm of spirit of foetid ammonia, and one ounce of camphor mixture; to be taken three times a day.

18th.—Was very restless up to three this morning, since which time she has enjoyed a quiet sleep. Her speech now is quite indistinct, and cannot be understood at all. She is perfectly sensible when roused, and puts her tongue out very well, without its being drawn to either side; neither sensation nor motion at all impaired. When asked if her head aches, she moves her hand all over it. To have eight leeches applied to the vulva, and mustard plasters to the nape of the neck, and the aperient draught if necessary. Continue pills and mixture.

19th.—The leeches have been applied, with the greatest relief to the head. She appears better in every respect; the articulation, however, is still most imperfect, she being only able to utter a word here and there. The bowels have been freely moved, and she has passed a large quantity of clear urine; the pulse continues feeble. Full diet: medicines continued.

22nd.—The catamenia appeared yesterday morning. She is improving fast; perfectly rational; no appearance of restlessness or childishness; speech much the same as at last report. I examined the heart carefully this morning; its action is regular, force natural; the murmur has disappeared; there is no dyspnoea, or any symptom, either local or general, to indicate disease of the heart. She continues on the same treatment.

24th.—Her speech suddenly returned yesterday morning, and she continues to improve in every respect.

From this time she remained under my care for several weeks, during which period the same principle of treatment was kept up, and her health was completely established. I have lately seen her, and understand that she has continued in perfect health ever since. The catamenia return regularly, and she is never troubled with palpitation. She takes regular exercise, and sponges herself every morning with cold salt-and-water.

When I first saw the above case, I was deceived in supposing it to be one of simple hypertrophy. Before coming under my care, she had been treated by two hospital physicians for the same complaint. There was the slow, laboured, and impulsive movement of the heart; the increased area of the heart's sound, with slight murmur, together with flushed countenance, and singing in the ears; these symptoms, coupled with the state of the pulse, led me to suppose there was hypertrophy of the left ventricle, and for that complaint she was treated in the early part

of the case, the indications of which treatment were, to reduce local congestion by the application of a small number of leeches, and to quiet the heart's action by sedatives, combined with alkalies. Had it not been for the severe hysterical attacks for which I was called on to attend her the second time, the complaint would still have been noted by me as that for which I had mistaken it. I must confess the extreme pain which she appeared to feel in the first instance led me to think that it was not simple hypertrophy she was labouring under, as I had never met with it before to that extent, and I believe it is not general. Dr. Walsh, in the last edition of his work says, "Precordial pain, rare in simple hypertrophy, is not uncommon in the dilated variety." Again, there existed the systolic bruit so rarely seen in simple hypertrophy. These, though rare, have been present, and therefore I imagined they might be in this case.

Hysteria so closely simulating heart disease is uncommon, but simple hysterical palpitation is what is met with in every-day practice. It has not been my lot to meet with a case of the kind, and I cannot call to mind having ever met with one in the course of my reading. The pathology of hysteria is obscure; the source of the affection has been ascribed by most writers to the uterus and its appendages. Pinel and Foville imagine that it consists in an excited state of the nerves supplying the uterus; and Dr. Copland, in his article on this subject, says, "That the primary affection is seated in the nerves of the generative organs, and that it consists chiefly of excitement, erythraemia, or vascular determination to the uterus, or with disorder of the catamenia, are shown by the circumstances in which it is observed, and the fact that it never appears until these nerves have approached their full development, nor after their principal functions have ceased."—"Hysteria does not occur in aged females, for the very same reason that menstruation and pregnancy do not take place in them." To this latter sentence I must, however, demur, for I have now before me two well-marked cases of hysteria in females in whom the menstrual flux has ceased for some years; and it will certainly seem that the cases of hysteria in the male, three of which have come under my notice, should show that the complaint cannot be invariably referred to the sexual system, as in these cases the sexual organs were sound and in a healthy state, but in all three they occurred in men whose nervous systems were in a shattered condition, and the symptoms ceased as soon as the general health was improved by ferruginous remedies and change of scene. Dr. Todd, in a lecture on local hysteria, in a late very valuable volume published by him, says, "It is not a disease of an inflammatory type, and no part of the system is in a state of inflammation. Hysteria, no doubt, occurs chiefly in persons who have a peculiar character of nervous system, very often inherited from nervous or gouty parents. It depends partly upon this original conformation of nervous system, and partly upon a depraved

state of general nutrition affecting the whole body, and accompanied by a morbid state of the blood. It is always very much influenced by a disordered condition of some of the great emunctories." "Although the hysterical condition is mainly physical, and, as such, transmissible from parent to offspring, you will not lose sight of the fact, that it is readily affected by moral influences. A sound education, as regulating the habits, is of primary importance to the hysterical patient, and a judiciously-directed moral treatment is essentially necessary to give full effect to such physical remedies as may be applicable to the case."

But how comes it that hysteria should assume such varied and fanciful shapes? We find hysteria simulating inflammatory affections, as peritonitis, hepatitis, splenitis, pleuritis, and pericarditis; we have, again, hysteric epilepsy, and other anomalous spasmodic affections, shown in respiration, deglutition, &c.; there is the hysteric paralysis, and hysteria connected with various mental affections; and Dr. Durrant even mentions a case where this complaint has simulated phthisis. The symptoms, he says, are those added to the hysterical diathesis: there is cough, short and hacking, or in occasional paroxysms; expectoration of mucus, tinged, and at times largely, with blood; pains in various parts of the chest; pulse seldom above 80; tongue clean; considerable anorexia; bowels generally sluggish; catamenia regular and healthy, but sometimes profuse; no emaciation; sounds on percussion normal; an inferior degree of the moist bronchitic rhonchi, although not persistent. The affection is usually of considerable duration, and does not yield readily to treatment; the patient ultimately recovering completely under the influence of comparatively trifling remedies, or as the result of an unexpected moral impression. Why hysteria should assume all these varied forms it is impossible to say, but that the severe local pains which we find existing in persons of this diathesis depend upon reflex action there appears to be little doubt.

With regard to the general treatment of hysteria, I have found no class of remedies so useful as the foetid gums, variously combined, either with sedatives or narcotics and steel; and for the relief of the local pains, aconite, chloroform, and belladonna. The liniment which I have found most useful is the following:—Tincture of aconite, half an ounce; chloroform, three drachms; soap liniment and compound camphor liniment, of each one ounce and a half. This should be rubbed into the seat of pain, and if necessary a piece of lint soaked in it, and applied under oiled silk.

Royal-crescent, Notting-hill.

REPORT OF CASES OF DISEASE OF THE HUMERUS.

By V. B. WEBB RICHMOND, M.D., M.R.C.S.,
Brighton, near Melbourne.

In a file of THE LANCET which has reached me,

I notice a case reported at one of the hospitals, of disease of the humerus, arising from gun-shot, in an Italian officer, wherein the success of recovering the use of the arm by removing the carious portion of bone is doubted. I have had several cases in the course of my practice, which leave no doubt on my mind, that in healthy subjects, where accompanying circumstances are favourable, very large intervals of bone will be filled up by fresh deposit. I was led to this conclusion when a student at the Bristol Infirmary by the post-mortem examination of a man in the dead-house of that hospital. I found an old fracture of the radius, in which the original structure had either exfoliated or been removed (appearances warranted the former conclusion) to the extent of three inches, and supplied by new bone; the ulna had not been fractured.

CASE 1.—When surgeon to the Maestry Iron-works in Glamorganshire, I was called by a neighbouring surgeon to amputate both legs of Rees D—, a farm-labourer, employed in hulling lime for a tramroad. Having fallen, both legs were crushed by the trains passing over them, the muscles much lacerated, and the tibia and fibula perfectly comminuted to the extent of three or four inches. On examination, I found the vessels were not wounded. The man declared that we might as well remove his head as his legs, and prayed that an effort might be made to save them at any risk. I considered the operation might be delayed; but after removing a vast amount of spiculae I had little doubt that amputation must take place. Not so, however; the legs were placed in position and the patient went on to perfect recovery, without an unpleasant symptom. I watched the case for about seven weeks, and then left him to his local surgeon. This case established the conviction the post-mortem examination had commenced.

CASE 2.—On the voyage to India, in medical charge of the reserve companies of H. M. 49th Regiment, Patrick R— got in the way of the main-brace while the ship was going about, the velocity of the rope as the yard swung round inflicting a severe wound in the perinaeum, rectum, and neck of the bladder, also cutting the leg about the middle of the tibia, and destroying the periosteum; while the wound of the perinaeum was being cured, exfoliation of the tibia was going on, and as soon as the faeces and urine took their natural course, and the patient was progressing towards convalescence, after making a careful examination of the tibia, I found it carious to the extent of two inches and a half, which I at once removed, and its place was supplied by the time we landed in Calcutta by a new deposit. Now, in this case it was manifest that the fibula did not contribute, and I should feel no doubt as to the humerus.

CASE 3.—William G—, a farmer residing at Brighton, in the colony of Victoria, in May, 1850, rode against the stump of a tree, fracturing the tibia near the centre, and the tibia and fibula five and a quarter inches lower,—a double compound fracture, with protrusion at both wounds; the fractures were clean and transverse, without com-

minution. I placed the limb in position, and called a consultation with Mr. Thomas, of Melbourne, very deservedly enjoying a high reputation as a surgeon and a former pupil of Mr. Liston. This gentleman at first advised immediate amputation, but finally yielded to my reason for delay. In a few days, a protrusion of the intermediate portion of the tibia rendered its removal or amputation necessary. Having again consulted with Mr. Thomas, we determined on its removal, which was done by a free incision, and five and a quarter inches of tibia removed in one piece. In five months he used the leg without support. There is a firm bony union, but a shortening of the limb of about an inch; and to this hour he has experienced no other inconvenience. He went to the gold-fields, and was amongst the fortunate and wise; as he invested his gain in extending and improving his farm—an employment if not so alluring, far more certain of a beneficial result.

ON A NEW METHOD OF OPERATING FOR FISTULA ANI.

BY ANSELL BALL, Esq. M.R.C.S. & L.S.A., Spalding, Lincolnshire.

THE difficulty sometimes experienced in operating for fistula ani,—1st, as regards the penetration of the bowel without wounding the index-finger of the operator;* and 2nd, by the sudden withdrawal of the patient, and simultaneous approximation of the glutei maximus muscles at the moment of division of the intended parts,—has induced me to devote some attention to the subject, and ultimately led to the employment of a gum-elastic speculum ani, lined with glass plated and containing an incisure half an inch in width and extending two and a half inches from the orifice of the instrument, which I have found to possess the desired property of completely overcoming the difficulties already alluded to. After deciding upon the propriety of an operation, and the proper evacuation of the bowel, the patient may be placed upon the side, near to the edge of the bed, taking care that the light may have full access to the diseased part. When the fistulous canal is somewhat tortuous in its course, the director should be introduced prior to the speculum; but when otherwise it is not of much importance. A straight, sharp pointed bistoury (the blade of which is immovably fixed in the handle) will readily slide along the groove of the director, and may, with ease and perfect safety, be then passed through the coats of the bowel and the incisure speculi into the interior of the speculum, where it can be easily perceived, and may then be withdrawn, in order to divide the intervening sphincter; after which the wound may be dressed in the usual manner. In the event of undue hæmorrhage the speculum may be retained for a time, and plugged with lint saturated with appropriate styptics; and should not that suffice, the

* A medical friend of mine has recently had a narrow escape of his hand, and even life, from inflammation of the hand and arm occasioned by a punctured wound of the index-finger while operating for fistula ani.

actual cautery may be employed, or the artery seized with a long pair of forceps bent in right angles near to its points, and then passed round them a piece of silver wire, the two extremities of which may afterwards be passed through a small double canula, fastening one end to the ring at the side of the canula, and then drawing the other end tight enough to close and even divide the inner coat of the bleeding vessel, in a manner similar to the strangulation of a nasal polypus.

September, 1854.

ON A CASE OF LARGE CONCRETION IN THE RECTUM.

By J. JONES, Esq., M.R.C.S., L.S.A., Llandyssul.

T. J.—, aged forty-five, a farmer, had enjoyed good health until about two years ago, when after eating plums, he felt uneasiness in his bowels, which continued to torment him ever afterwards. About six months ago the pain became more violent, and he began to be troubled with piles. He often took aperients, but, though they operated, he was never relieved; for he said that he felt something that he could not pass. For the last fortnight the pain had been intolerable. He had taken a great quantity of medicine without relief.

July 20th.—I was requested to visit him for the first time, and found him in a most deplorable state. Violent pain existed in the lower part of the bowel; the fæces passed involuntarily; and the anus and adjacent parts were much swollen and excoriated. To have an anodyne mixture, and the painful parts to be fomented with water.

21st.—Somewhat easier, but not relieved.

22nd.—Has voided a hard substance, which gave him great pain in passing. On examination, I found the rectum quite blocked up, with a substance as hard as a stone. After some difficulty, I succeeded in extracting a concretion as large as a man's fist, which somewhat relieved him; and felt another, which could not be reached without giving much pain.

23rd.—Was summoned to him in great haste, as he was in the most excruciating pain, being unable to pass a substance which presented at the anus. Extracted another concretion, not quite so large as the last, to the great relief of my patient, who up to the present time is going on favourably.

The concretions, three in number, consisted of layers of a substance of a brownish colour, much harder than leather, each of them containing a plumstone for a nucleus. Did these substances travel progressively (by no means at a railway pace) during the whole of the time he was ailing, or did they halt to acquire that magnitude before proceeding on their journey?

August, 1854.

ON THE TREATMENT OF OVARIAN DROPSY BY IODINE INJECTION.

By C. EDWARDS, A.B., M.D., F.R.C.S., Cheltenham.

Miss M. D.—, aged twenty-nine, suffering from ovarian dropsy, consulted me on the 9th

of June last, stating, in the history of her case, that her last catamenia occurred in April, 1855; that they had gradually declined for the eight months previous to their cessation, prior to which eight months they were always profuse, though regular as to time, and that her abdomen began to swell in May, 1855, which swelling went on rapidly to the present date.

Present state, June 9th, 1856.—The measurement around the abdomen at the umbilicus is forty-four inches. She is pallid, anæmic, emaciated; the wasting, she states, has been excessive. I had the pleasure of a consultation with Mr. I. B. Brown, obstetric surgeon to St. Mary's Hospital, who, after a most careful examination, considered the cyst multilocular; that if her case were left to itself she could scarcely be expected to live longer than twelve months; that it was one of the worst forms for treatment, but that iodine injection might be tried, *six ounces of the Ph. Ed., simply through the canula by a glass syringe*, her wasted condition having been previously as much as possible repaired by iron, &c. &c. This opinion was kindly and candidly given to her sister, and reservedly to herself, and shortly after her return to Cheltenham, by the advice of her friends, she consented to the operation.

After this consultation, having felt certain misgivings as to either being able to safely lodge the iodine in the emptied cavity by the simple syringe and canula, or by such means to sufficiently wash its distant anfractuosities, I resolved on taking the responsibility both of *more efficient injecting power* and *more iodine*. Accordingly I had a No. 16 prostate catheter supplied me by Weiss and Son, accurately adapted to pass through the canula of a trocar, made from a pattern kindly lent them by Mr. Brown. This tube, by a very simple screw contrivance of my own, I had attached to the moveable stop-cock nozzle of a large gum-elastic bottle.

On July 15th, at noon, in the presence of Dr. Colledge, whom the patient had previously consulted, several relatives, and Mr. Morris, surgeon, who administered chloroform, I perforated the left linea semilunaris with the large trocar, and pressing in the canula as far as I could, the ovarian mass being at the same time compressed, and the canula having to be repeatedly cleared of viscid obstruction, I evacuated twenty measured pints of a *very thick*, viscid, mushroom-ketchup-coloured fluid. Hesitating now still further as to simply injecting with the syringe, I introduced the prostate tube nearly its whole length through the canula, and, with all the compressing force I could exert on the elastic bottle, I injected ten measured ounces of the Edinburgh strength, fresh made from sublimed iodine, thus thoroughly washing the cystic parietes. The hard, irregular, emptied mass was now strongly compressed by pads and a firm flannel roller, and a pill, containing two grains of opium, was given at once.

The *scarcely to be called fluid*, examined chemically, was solidified by heat and nitric acid, and, microscopically, exhibited abundantly the large

compound granular masses ("exudation corpuscles"), granules, and numerous cholesterine crystals, &c. &c., as diagramed by Dr. Druitt in his last edition, p. 483.

I next proceed to the *sequelæ of the operation and after treatment*. At five P. M. vomiting has just commenced, and continued violently, with scarcely fifteen-minute intervals, till nine next morning. No perspiration; pulse weak and 140; burning sensation commenced in the throat, with excessive thirst and difficulty of deglutition. The fluid ejected tasted sour, hot, and bitter, but not like sea-weed. To take two grains of pure opium in the form of pills at bedtime; brandy and soda-water *ad libitum*, arrow-root and brandy, and if possible beef-tea.

16th.—Vomiting has somewhat subsided since nine A. M. From the incessant vomiting she had not slept more than half an hour since the operation, although having taken four grains of opium. She passed in the night upwards of two quarts of limpid urine. All the other symptoms, except the vomiting, somewhat aggravated; *cephalgia is intense*; the eyes protrude and glisten; pupils dilated; no delirium. Ordered to proceed with stimulants and nutrition.

17th.—Vomiting has entirely ceased; urine high coloured and less copious; appetite ravenous for bread, &c.; much thirst; had slept four hours last night. Ordered to proceed with wine, brandy, and nourishment.

18th.—Mouth and throat "have a more metallic feeling;" perspiration and thirst increased; appetite diminished; tongue dry and brownish; skin cooler; pupils less dilated; bowels confined; sickness returned. To have a pill, and afterwards a purgative draught. Vomited four times since taking the pill. Ordered a purgative enema.

19th.—Bowels have thrice freely responded; pulse 106, and fuller; all the symptoms of iodism are abating.

22nd.—Can get out of bed. Ordered to agitate her body gently by walking a little.

24th.—She is up and dressed, and feels quite well.

I have removed the compresses and the hot flannel bandage, which she thought loose, and that it could be borne much tightened; and with fresh compresses, and Nickel's elastic plaster, *instead of a belt*, I strapped up the abdomen with considerable pressure, with which, from its equal distribution, she is quite comfortable. Ordered to take gentle exercise in the open air, to live generously, and to keep up the pressure.

I beg to append a few observations:—

1st.—No pain whatever, nor even sensation of any kind, except "that of a bubbling," was felt in the abdomen, from the time the iodine was injected till now. She was perfectly conscious during the injection, having been merely chloroformed to prevent pain from the use of the trocar.

2ndly.—Iodine was chemically disengaged from every accessible excretion and secretion, even the saliva, perspiration, and tears.

3rdly.—It having been my lot to inject the largest quantity of iodine ever thrown into the

human body, (ten ounces, Ph. Ed., which, not only from the quantity of iodine dissolved, but from its *concentration*, must equal in effect nearly thirty ounces of the English tincture,) and this with efficient force and contrivance, both the preparation of the iodine and my operation having been public, and attested scientifically, the result of my case (which shall be faithfully forwarded in due time to THE LANCET) will be a decisive index of the *real value* of iodine as a remedy in ovarian dropsy, as I trust the above detail of the operation and its sequelæ is an exponent of the quantum of risk remedially involved.

4thly.—Should this enormous quantity prove efficient, and be in future resorted to, stimulants *freely exhibited* both during and after the operation, in my opinion, formed after close observation, reduce the remedial risk to its minimum, and the patient may be considered safe therefrom in about sixty hours.

July 26th, 1856.

P.S.—August 25th, 1856, *six weeks after Operation*.—No re-accumulation of fluid whatever. A fulcrum bandage over the elastic plaster, with compresses applied at each side of the emptied ovarian mass, and admitting of *gradual tightening*, has been kept applied. A reduction of four inches around it has been effected during the last fortnight. Miss D— is gradually but steadily improving in her general health, and I have not found it necessary to order any medicines. She is gone to the sea-side to-day for her amusement and health.

CASE OF RUPTURE OF THE MENINGEAL ARTERY; OPERATION.

By HENRY WATSON, Esq., M.R.C.S.E.,

LATE SURGEON TO H. M. STEAM TRANSPORT "GOLDEN FLEECE."

JOHN HAWKINS, aged twenty-seven, a spare, delicate-looking man—the "Boots" in the *Golden Fleece*—was seized, on the 18th of April, at the commencement of a voyage to the Crimea, with a fit of epilepsy, for which I was called to see him. I found him lying on deck, with all the usual symptoms of that affection. In a few minutes he recovered his consciousness, and was able to answer my questions; and walked to his berth, apparently well. On my seeing him half an hour afterwards, to my surprise, I found him drowsy, stupid, and nearly insensible; in an hour's time he became completely so. His pulse became full, slow, and labouring; the pupils fixed and dilated; the skin hot; and his motions were passed involuntarily. I ordered his head to be shaved, and carefully examined it to see if there was any external fracture. None, however, was perceptible, a slight bruise only being visible on the right side. I therefore ordered a large blister to be placed on the scalp, fifteen grains of calomel to be given through the medium of butter, and a strong turpentine enema to be injected. In the evening, the right side of his body was completely paralyzed, and there was no improvement whatever.

For three days this state of things continued,

the same treatment being resorted to. I was now convinced that unless something further was quickly done he would sink, and that, from the symptoms of the case, it was compression from extravasation. Bearing in mind Mr. Hilton's opinions on these cases, on the 22nd I trephined over the site of the middle meningeal artery on the left side. On removing the bone, to my great pleasure I found a large clot of blood between the bone and dura mater. This I removed, and in two hours afterwards the man had recovered his consciousness, and could speak distinctly and rationally; the paralysis also entirely disappeared. He went on well for the next four days, and on our arrival at Malta I sent him to the hospital there, as it would be some time before he would be able to attend to his duties. At the expiration of a month the wound had nearly healed, and he had nothing whatever to complain of; I therefore ordered him on board to resume his duties. In a couple of weeks the wound had entirely healed, and he went on performing his duties till our arrival in England in July, when he was discharged, perfectly well.

Remarks.—This case is very interesting, and shows the great value of Mr. Hilton's opinion on injuries of the head. He doubtless struck his head on the right side when falling, and, from the form of the skull, the effects were felt on the opposite side, resulting in the rupture of the middle meningeal artery (the "*contre-coup*" of the French). My reason for trephining on the opposite side to the bruise, was the paralysis on the right side; that being a point on which I have heard Mr. Hilton particularly dwell, and which I believe is especially mentioned in his lectures.

Loughborough, Leicestershire, August, 1854.

REPORT OF A CASE OF POISONING BY THE SULPHATES OF COPPER AND IRON.

By H. J. COCKBURN, Esq., NEWARK.

Miss M—, aged thirty-two, was taken ill on the morning of May 29th. The symptoms set in with sickness, and continued until midnight, when she appeared to be in a state of stupor. On the following morning she was found on her hands and knees on the floor, retching and vomiting a yellowish liquid: a little tea was given to her which she vomited immediately. She then complained of pain in the stomach. At nine A.M. purging came on; the stools were black and yellow in colour, and of the consistence of thin gruel; she complained of great thirst and constriction of the throat, dreadful pain in the stomach and bowels, severe headache, and tremblings of more or less transient duration. At nine P.M. she drank a cupful of gruel and brandy; the vomiting and purging continued until midnight, when the sickness abated.

At six o'clock the following morning she complained of great debility, and had not strength to sit up in bed. The purging still continued; the stools were now black and watery, and pain in the

bowels and extreme thirst were the most prominent symptoms. Between eight and nine A.M. she was raised up in bed, and a little brandy was administered to her. A greenish coloured liquid was observed to flow from her mouth, and at nine A.M., she died without convulsion, twitching, or sign of pain.

Post-mortem appearances, forty hours after death.—The body was remarkably stiff and rigid, the fingers were contracted, and the feet slightly arched. The skin presented a general jaundiced appearance, and round the eyes was tinged greenish black; the lips, teeth, and tongue, were stained black. On opening the chest, the lungs were found healthy; the heart was healthy externally and internally; the right side was full of dark liquid blood, the left side was empty, the ventricles relaxed. *Abdomen:* The external colour of the stomach was greenish-grey; the spleen was healthy in colour, except where in contact with the stomach, where it had discolorations of a greenish-grey and blackish-green hue. The inside of the stomach presented a greenish-grey appearance; brown spots were found closely scattered round the cardiac orifice and the lesser opening; it contained eighteen ounces of a greenish-coloured liquid. Greenish-black stains were found on the depending portion of the small intestines; the upper portions contained the same liquid as that in the stomach, and the lower were comparatively empty, and had black stains in various places on their mucous lining; the contents were black in colour. The large intestines were contracted, and contained a thick, blackish liquid, somewhat resembling treacle in consistence. The kidneys were healthy; the bladder was empty and contracted. The brain was healthy; congestion of veins, with dark liquid blood, was found throughout.

Portions of the contents of the stomach, the small and large intestines, were submitted to chemical tests, and iron and copper were found in each. The discoloured portions of the spleen were dissolved in strong nitric acid, incinerated, and re-dissolved. Copper was indicated both by chemical tests and by precipitation by galvanic agency, as given by thin plates of iron and zinc, and iron and silver. The quantity of the poisonous salts taken by deceased was eight or ten drachms, consisting of two or three drachms of the commercial sulphate of iron and seven of sulphate of copper, and which had been purchased for agricultural purposes.

No medical man was called in during the exhibition of the poison; the symptoms were detailed by the witnesses at the inquest held upon the body.

August, 1854.

ON A CASE OF DIFFUSE ABSCESS IN THE NEIGHBOURHOOD OF THE KNEE-JOINT.

By C. H. MARSTON, Esq., M.R.C.S.E., Henlow.

On the 26th of May last, I was called upon to see J. M—, a young man, twenty years of age, by trade a builder. Six days previously he had

knelt for a length of time upon some damp timber, and in the evening felt a soreness and smarting in the right knee, which shortly afterwards became red and inflamed. Three days afterwards he had severe rigors, followed by headache, fever, and increased pain and swelling.

I found him lying on his back, the countenance expressive of much suffering; the right thigh was laid perfectly straight, the knee being much swollen, red, and painful; the swelling surrounded the limb, and extended from the spine of the tibia to about an inch above the patella. To the touch the tumour was hard and tense; no tendency to point was obvious at any place. The pain was described as throbbing and starting, the patient being continually awakened by "something shooting through the knee" when falling off to sleep. No appetite; tongue covered with a brownish fur; pulse 98; skin hot and damp; bowels have been opened by senna and salts. To apply at once twelve leeches, encouraging the bleeding by poppy and camomile fomentations; ten grains of the compound ipecacuanha powder to be taken at bed-time, followed by an aperient draught in the morning.

On examining the knee next morning, I found the swelling somewhat softer, and yielding a more decided sense of fluctuation to the touch. The patella could scarcely be distinguished by the finger, nor could the line of the ligamentum patellæ be discerned. It was evident that the supuration was external to the joint, and surrounding the whole of the limb, the extent of the tumour excluding the idea of its being an inflammation of the bursa patellæ. I had the limb placed on a hard mattress, the parts surrounding the knee being well padded, so as to prevent "bagging." A valvular incision was then made just over the outer tuberosity of the tibia, and about twelve ounces of sanious pus escaped. A probe, on being introduced into the wound, was found to pass freely in all directions on the circumference of the limb; and on passing one probe externally, and another internally, they were found to meet beneath the integuments behind the knee.

It was evident that we had a diffuse abscess in the cellular tissue overlaying the deep fascia of the leg, this structure being itself uninjured. The extent of integument separated from the deeper parts was very considerable—the integuments being so extensively undermined that sloughing was feared. For twenty-four hours after opening the abscess, poultices were applied, the posterior and lateral parts of the limb being well supported by pads.

On the second day the whole limb (leaving a small space for the discharge of pus) was bandaged on the principle of Mr. Chapman; a portion of skin, about the size of a crown piece, was all that perished; and the walls of the abscess were, in the course of three days, found firmly adherent. The resulting ulcer was for some time disposed to be rather indolent in its action; but, with some humouring, completely closed in the course of six weeks.

I may just mention the great benefit derived from Curtis's "pasma," with which the sore was on several occasions dusted. I was anxious to have adopted during the whole treatment Mr. Chapman's method of bandaging, but so great was the irritation during the extremely hot weather which once or twice occurred, that I was compelled again and again to abandon it. This irritability of skin may be accounted for: during the progress of recovery, several crops of bullæ, some of which threatened trouble, showed themselves; they were, however, controlled by emollient lotions, and the internal use of Donovan's solution. The patient's health, during the whole period that followed the evacuation of the abscess, was vigorous. He ate well, drank well, slept well, and, to use his own expression, "felt well." Never have I seen so troublesome an eruption of bullæ, combined with so good a state of health.

There are two or three points worthy of note, as—

1. The intense inflammation set up in so close a proximity to the knee-joint.
2. The extensive undermining of the integuments.
3. The efficacy of the wetted strips of bandage in promoting the adhesion of the separated integument, and preventing further sloughing.
4. The troublesome cutaneous complication.

Bedfordshire, August, 1866.

FOREIGN BODY IN THE EYE.

By JAMES MARTIN, Esq., M.R.C.S.E., &c.,
Quebec, Ca.

PERHAPS the following case may be worthy of a corner in your journal. It was brought to my recollection on reading Mr. Critchett's paper in *THE LANCET* of Nov. 1855.

John R—, aged twenty-four, was brought to my surgery on March 10th, 1854. He stated to me that an hour previously, while in the act of driving a copper bolt, a splinter of the bolt flew off, and struck him on the right eye. On separating the lids, I found the cornea divided horizontally in its whole extent. I found also a slight wound on the edge of the lower lid. He did not complain of inconvenience beyond the peculiar sensation of the sudden deprivation of the sight of one eye. I could detect no foreign body in the eye, and did not feel justified in exploring for one. I imagined that the wound had been produced by the fragment of copper glancing swiftly past. I ordered him to live upon arrowroot and gruel, to keep ice-water constantly applied, to take every morning a wineglass of compound infusion of senna, and to remain in a darkened room.

For ten days he went on without complaint, sleeping well, and feeling comfortable. On the morning of the eleventh day, I was sent for in haste. I found my patient in great agony; he had been suffering since early in the morning. It struck me at once that the fragment had lodged in the eye, and I proceeded to remove it. With a pair of dressing forceps closed, I explored

the eye, and having touched a hard substance, I seized it. With a slight amount of force, I drew from its bed, in the posterior part of the globe, a splinter of copper, three quarters of an inch long, one quarter of an inch in breadth, and weighing twelve grains. In a short time the pain was relieved, and the patient from that time suffered nothing. The globe, collapsed, would now form an excellent bed for an artificial eye, did his circumstances allow him to obtain one.

1856.

TREATMENT OF INVERSION OF THE TOE-NAIL.

By C. LOVEGROVE, Esq., Brighton.

A young person, about twenty-six years of age, had been under a surgeon of some renown in London for three or four months, and in spite of all the means usually adopted in such cases, continued to get worse. She visited Brighton, and consequently the case came under my notice; I saw at once it was a fair opportunity of trying this new idea, which is as follows:—The nail, which is usually very thick on the great toe, was scraped moderately thin with a piece of glass, and then the whole surface covered with a good coating of nitrate of silver, which was accomplished by rubbing the stick of silver carefully over the whole of the nail, moistened with a little water; after which a linseed meal poultice (hot) was applied, and the next morning nearly the whole of the nail was separated from the flesh, and another milder application divided it entirely. The nail was then removed without the least pain, and the patient assured me she had not suffered at all during the whole operation. In less than a fortnight after the operation was completed, the patient wore her usual boots with comfort, and before leaving Brighton, a new nail was rapidly growing.

ON A CASE OF CONGENITAL DROPSY, VESICULAR AND ANASARCOUS.

By W. THOMAS, Esq., F.R.C.S., Pembroke.

THE following are the particulars of a case which occurred in my practice during the past summer, and considering them interesting to the profession, I send them for insertion in the valuable columns of THE LANCET:—

Mrs. I—, pregnant of her second child; the period of gestation unaccompanied by any abnormal symptoms until the latter part of the eighth month. She then had a severe attack of catarrh, with violent cough and copious expectoration, which continued some time, and required rather active treatment. The labiæ now began to swell, and to such an extent did it proceed, that to avoid pressure the thighs were obliged to be kept widely asunder, and she herself to lie flat on her back. The thighs, legs, and feet soon partook of the œdema. Scarifications relieved the enlargement of the pudenda, but the other swellings did not subside completely until after parturition, which took place without any other untoward

symptoms. The child when born was generally œdematous, and had large vesicles over various parts of the body, especially the lower extremities. It was still-born, but had otherwise a healthy, mature appearance.

Though in the course of an extensive midwifery practice of thirty years I have occasionally encountered these dropsical swellings of the external parts of generation, I do not recollect ever before having found the fœtus congenitally thus affected.

Pembroke Dock, September, 1856.

CASE OF ABSENCE OF THE GALL-BLADDER IN A WOMAN AGED FIFTY.

By EZRA HARLE, Esq., L.S.A.

A. B—, who had had a family, died suddenly. The post-mortem examination exhibited congestion of the brain. There was a large quantity of fluid in the chest. The liver, throughout its substance, was of a very dark-green colour, much resembling blue clay, but with a strong greenish hue.

After a careful examination by Mr. Pickess, of the Caledonian-road, and myself, we could not discover the gall-bladder, nor any trace of the cystic duct.

Cross-street, Lillington.

REPORT OF A CASE OF FRACTURED BASE OF THE SKULL.

By E. F. FUSSELL, M.B., M.R.C.S.

At two o'clock P.M. on July 4th, 1854, S. U— aged thirty-three, fell from a tree upon the back of his head. He was in a state of collapse; quite insensible; bleeding from the left ear, and vomiting blood; pupils not acting; pulse feeble; extremities cold; breathing slightly stertorous; scalp wound at the back of the head; pericranium not ruptured, and no fracture could be detected. He was quite sober at the time. I ordered him to be put to bed; hot bottles to be applied to the feet, and cold lotion to the head.—Ten P.M.: has been constantly vomiting, the matters ejected being mixed with blood; considerable bleeding from the left ear when he turns on that side. He is insensible; pupils act a little, but are very sluggish; pulse but little increased in power; sensation perfect. Held a consultation with Mr. Morgan of Bromley. Four leeches were then applied to the temples; six grains of calomel were administered, followed by a black draught; the hair to be cut quite short, and the room to be kept quiet and dark.

July 5th.—The patient answers to his name; pupils still sluggish; fluid from the ear of a watery nature, and in considerable quantity; tongue well protruded: retched occasionally; passes his urine unconsciously; bowels not open; more power in the pulse, and it is very jerking. He was bled to sixteen ounces. Ordered, castor oil, one ounce. Calomel, two grains; nitrate of potash, four grains every four hours. Saline mixture, with digitalis. To have thin gruel occasionally.

6th.—Seven o'clock A.M.: Passed a quiet night, but between five and six o'clock he awoke, complaining of most violent pain at the back of the head, which caused him to cry out, and toss about the bed; vomiting ceased; hears and understands everything; pupils sluggish; secretions natural: pulse full and jerking; feet cold. He was cupped to eight ounces between the scapulæ. To continue the powders and mixture.—Nine o'clock, P.M.; Pain abated soon after the cupping; has been very quiet all day; discharge from the ear nearly ceased.

7th.—Nine o'clock P.M.: Pulse still very jerking; very talkative; some pain in the head, but it is slight compared with what he suffered yesterday; pupils act very well; mercurial factor. Cupped to six ounces between the scapulæ. Omit the calomel. Continue mixture.

8th.—Passed a restless night; understands what is said, but answers slowly; has some difficulty in swallowing; tongue rather dry, and cannot be protruded; passes his urine unconsciously; head hot; occasional twitchings. Ordered four leeches to the temples.

9th.—Seven A.M.: Much the same. Mixture and calomel powders twice a day.—Ten P.M.: Amount of sensibility since the morning very great; hears and notices everything; asks for porter. Three leeches to the temples; effervescing salines with digitalis.

10th.—Sensibility increases; he talks in a rambling way occasionally; secretions natural. Pulse less jerking, the first time it has been observable. Calomel powder at night.

11th.—Complains of a dull, aching pain over the mastoid portion of the left temporal bone, and points to the spot. Repeat calomel powder; three leeches.

15th.—Going on well; complains of pain at the back of the head. Blister to the nape of the neck; continue mixture.

20th.—This morning he was seized with violent irritation; his whole skin itches and burns. The face is as bad as the toes; begs to be sponged with the spirit lotion which is applied to his head. Continue the mixture without the digitalis; to have chicken-broth with toasted bread, and allowed to sit up for half an hour; room to be kept less dark.

22nd.—Was seized with irritation of the skin again last night. An occasional slight discharge of thin pus from the left ear, but he hears well on that side; bowels have kept open for the last few days without castor oil. To have a small piece of meat to-morrow. Discontinue the mixture. From this time he progressed favourably, and returned home at the end of a month from the time of his accident.

The patient having recovered, we had no means of proving the exact nature of the injury; yet we may fairly conclude that there was fracture of the base of the skull, from the cerebral derangement, combined with the pathognomonic sign of that accident—viz., the escape of a considerable amount of cerebro-spinal fluid from the ear. The blood

at the mouth probably came from the roof of the pharynx or the Eustachian tube, as it was not thoroughly incorporated with the vomited matters, which would have been the case had the stomach been injured. In this case there was much to be hoped for by careful and persevering treatment. The patient was of temperate habits, sound health, and was supplied with every comfort.—His employers went to see him, and requested that great attention should be given. Sensation, respiration, and deglutition were perfect, and the tongue well protruded. Insensibility, from which he soon recovered, and loss of power over the sphincter muscles were the only dangerous symptoms of cerebral and spinal derangement. After clearing out the bowels, the object was to place the system under the influence of mercury, and to keep up its action. The jerking character of the pulse was very striking; it lasted many days, in spite of the bleedings and digitalis. The pain at the back of the head on the day after the accident was extreme; the patient was obliged to be held in bed; this was, no doubt, meningitis rapidly setting in, as it was so effectually relieved by the cupping. The constant abstraction of a small quantity of blood tended to promote absorption; it also kept the brain in a quiescent state during its recovery from such a shock. The great irritation at the extremity of the nervous power was very remarkable, and I do not remember having noticed it before in such cases. Starvation diet and great abstemiousness upon convalescence were rigidly adhered to.

This case is vividly impressed on my memory from an accident connected with the summons. A companion who had climbed the tree with Mr. U— drove to my house in a dog-cart, begged me to go immediately, as his friend was dying, and offered to drive me to the spot and back. As my carriage was not ready, I assented, but was scarcely seated before the vehicle was upset. The driver was obliged to be put to bed at the nearest public-house, quite insensible with concussion of the brain. I was much scratched, and proceeded, with plastered chin, &c., to the case of fractured skull.

DISPLACEMENT OF THE TRACHEA, AND ITS SEPARATION FROM THE LARYNX, CONSEQUENT ON A KICK FROM A HORSE.

COMMUNICATED

By J. ROBERT ROBERTSON, M.D.,

RESIDENT ENGLISH PHYSICIAN FOR THE BATHS OF WINNIPEG.

THE following, I believe, unique casualty occurred recently to a Prussian soldier at Schwest, on the Oder; and as the particulars may be interesting to my professional brethren in England, I send an abstract of the report of Dr. Berger, the Surgeon-general.

Cannonier B—, of the Artillery of the Prussian Guard, was kicked by his horse a little below the lower jaw, while engaged in washing its hind hoofs. A small, unimportant skin-wound exhibited itself at the edge of the jaw, and some

blood, but not much, flowed from the mouth. The neck, however, rapidly swelled to an extent sufficient to materially impede respiration. The patient complained only of a peculiar sensation of weight in the epigastrium, and stated that he felt as if blood had collected in his windpipe and prevented his breathing freely. There was no fracture or injury to be discovered in the larynx. The patient was at once bled, generally from the arm and locally by leeches, without the slightest effect upon the orthopnoea. The latter symptom continued to increase rapidly until so fearful an emphysema had established itself, that the chest, neck, and face of the man were swollen to a frightful extent; and in this state, suffering great agony, he died, within an hour and a half of the receipt of the injury.

The *post-mortem examination* discovered a complete rupture of the trachea from the larynx, the latter being uninjured. The separation commenced at the left side of the cricoid cartilage, proceeding to the right as far as the middle of the posterior edge, so that a third part only of the union of the trachea and larynx remained intact. Several of the cartilaginous rings and ligaments of the trachea were ruptured, and it was found filled with coagulated blood. The thyroid, cricoid, and arytenoid cartilages were quite uninjured. The heart was in a normal condition; the lungs were congested, and of an unusually dark colour.

This I regard as a very singular and interesting case; not only from the peculiar nature of the injury sustained, but from the great disproportion of the external wound to the internal damage effected. A slight abrasion of the skin at the edge of the lower jaw was all that could be observed or discovered during life, and yet the autopsy displayed organic dislocation and rupture of so extensive a character that death ensued within an hour and a half of the occurrence of the injury. Whether, had its true nature been at once ascertained, an immediate resort to tracheotomy might have been attended with temporary advantage, may perhaps be a question. I say temporary advantage, for, with so serious a displacement, anything approaching to a cure could not, I apprehend, be expected.

Wiesbaden, August 30th, 1856.

ON A CASE OF CRANIOTOMY.

By EDGAR SHEPPARD, M.D., M.R.C.S., &c., Enfield.

I was engaged for the second week in August, 1855, to attend a lady in her confinement, whom I had twice delivered before of living children without any difficulty, and who had been extremely accurate in her previous calculations. The month progressed, and died away into September, before I had any tidings of my patient. I then called upon her, and found her rather uneasy about herself, and impressed with the idea that she was carrying twins. This, naturally enough, arose from the fact that she had exceeded her full time, according to her own reckoning, the accuracy of which she could not doubt, and that

she was of a very great and uncomfortable size. It was, of course, suggested that her abdominal development (which was peculiar and very unequal) arose from an excess of liquor amni, which was alone frequently sufficient to retard the commencement of natural labour. About every second day I looked in to see how matters were progressing, but still found that she had not been threatened with any premonitory symptoms. The abdomen had not sunk in the least, and she seemed positively larger daily, and complained of the foetal motion as being different from her antecedent experiences. Her discomfort was very considerable, and she sat on the edge of the sofa, with her arms straightened behind her, to yield additional support, and prevent too much pressure upon the ischial tuberosities.

Things progressed after this sort until the 13th of September, when about seven o'clock A.M., I was requested to lose no time in proceeding to the house of Mrs. B—. She had passed a very restless night, and had been harassed by incipient labour pains, which were so sharp about half an hour previous to my arrival as to cause rupture of the membranes while she was standing against one of the bed-posts; yet still there was no descent of the child, nor abdominal decrease. Having made a vaginal examination, I was unable to detect any presentation whatever, and I began to suspect something preternatural. This opinion was further strengthened upon manipulation of the abdomen, which was excessively hard, having (as it seemed to me) two distinct foetal outlines, that upon the left being much more developed than the other, and manifesting the greatest prominence at the fundus uteri. For some hours after this examination the pains degenerated into excessive feebleness, and I went away for the purpose of attending to other professional duties. But previous to taking my departure I instituted another vaginal examination, and was just enabled to detect a presenting head. It was this discovery, in fact, made through an os dilated to about the size of a half-crown piece, which led to, and alone justified, my temporary absence. Upon returning about three o'clock P.M., I found that but little progress had been made. The pains were increasing, the lips of the os uteri were soft and dilatable, but the head had not descended. There appeared, if I may so express it, an inability on the part of the uterus, owing to its great expansion, to sufficiently concentrate its muscular force for the purpose of effecting foetal extrusion. After remaining with my patient for about an hour, cheering her spirits and advising her to walk about the room, I again left her, with directions that I should immediately be sent for if the pains became severe. I saw her again between nine and ten P.M. Pains slightly on the increase, but still provokingly ineffective; os more dilated; head-presentation more clearly defined—left (I thought) parietal tuberosity. I remained for about four hours, and carefully noted the character of her pains, which were brief and unsatisfactory. A dose of ergot sensibly increased

them, and the head slightly descended. She was very cheerful and had no untoward symptoms of any kind; the bowels had acted freely during the day, and she passed small quantities of urine about every hour. I now went home to bed, and did not see Mrs. B—— again until about eight o'clock on Friday morning, when she sent to beg my attendance. The pains were getting sharper, but they were still ineffective and short. The presenting part had certainly made slight progress. On examining very carefully, I came to the conclusion that the head was unusually large and intensely ossified, and that it would not without great difficulty fairly descend into the pelvic cavity. Moreover, I felt assured that unless the pains altered very materially in character, artificial assistance would be required.

Things remained in this state during the whole of Friday, without any unsatisfactory symptoms arising. At eleven o'clock P.M. I went to the house, intending to remain all night. I again carefully examined the abdomen, and suspected, from the foetal outline, that there was only one child in utero, and that a very large one. The stethoscope confirmed this opinion, as I could only detect thereby the pulsations of one little life. Towards one o'clock the pains became more severe, and my patient complained of fainting sensations. She was evidently getting uneasy about herself, though she bore up wonderfully well. The pulse was good; the skin by no means hot: no sickness; no abdominal tenderness. Another vaginal examination revealed an os uteri dilated larger than the size of a crown-piece, the lips thereof being soft and yielding, with the exception of the anterior one, which was rather hard and puffy. It was clear that the head was very large, and firmly engaged in the pelvic brim, and that it could only be dislodged by artificial means. The cranial bones were perfectly insensible to pressure, and were evidently greatly ossified. Having, without any difficulty, fully dilated the os uteri, I determined to see what I could effect by means of the long forceps, and my proposal was at once assented to by the patient and her husband. The rectum was quite empty, as also was the bladder, for she had passed urine about twenty minutes previously; nevertheless, I passed a catheter into the latter cavity, to avoid any source of fallacy. About half-past two I introduced the forceps, and was enabled, though with considerable difficulty, to embrace the foetal head. The pains now became more severe, from the stimulus of the foreign body. Nevertheless, I could not, in spite of steady traction, effect any progress; and after persevering for about half an hour, I withdrew the instruments. The pains now completely subsided, and there was reason to hope that a little sleep might be obtained before the prosecution of ulterior artificial means. This was partly the case; but on the recurrence of the pains at half-past four o'clock, accompanied by vomiting, I suggested to Mr. B—— the propriety of a second opinion. This was at once assented to, and I called in the aid of my friend Mr. Asbury, a practitioner of this town,

whose large experience and sound judgment render him a valuable coadjutor in all cases of doubt and difficulty. The result of our consultation was, that craniotomy was the only alternative left, compatible with the mother's safety, and that the sooner the operation was performed the better. The ossification of the foetal head was so great that I had some difficulty in driving the perforator through the cranial walls. This having been effected, and the brain completely evolved, I was still unable, though assisted by a great increase of the natural pains, to make more than the slightest progress in the extraction of the child. After hard and steady work for an hour, Mr. Asbury kindly relieved me, and took nearly the same share of duty. The natural pains, be it repeated, were during the whole of this time exceedingly severe; our patient, however, bore it almost heroically. I now again resumed my post, and relieved Mr. Asbury, whose exertions had been prodigious. The head had decidedly advanced, and was now suffering itself to be slowly dragged through the cavity of the pelvis. In about ten minutes, to my great delight, it emerged from its iron-bound prison; but the body of the child still required considerable traction before it was released from the maternal embrace. There was a free gush of blood immediately afterwards; and as the prostration was very great, I thought it best at once to introduce my hand into the womb and remove the placenta, which lay detached at the uterine neck. Brandy, beef-tea, and gruel were now freely administered, but it was not for many hours that Mrs. B—— rallied sufficiently to relieve the immediate anxiety of all about her. Indeed, we thought at one time she would scarcely survive the day, so extreme was the exhaustion. On the third day she had a shivering fit, from which, naturally enough, serious results were apprehended; but a brisk calomel purge freely unloaded the bowels, and afforded great relief; and from this time she wonderfully progressed towards recovery. She was enabled to empty the bladder on the day of her delivery, and she never had the slightest abdominal tenderness; utter nervous prostration was the only enemy to contend against. She is now (October 22nd) down-stairs, and driving out in an easy carriage every fine day. Great weakness of the back and loins, accompanied by numbness of the right leg and inability to stand upright, remained until a week ago: this probably depended upon stretching, or perhaps laceration, of some of the pelvic ligaments.

I have omitted to state that the child (a male) was the most beautifully formed I have ever seen. It is to be regretted that no note was taken either of its weight or length, both of which must have been very great. The fact is, I was so absorbed in looking after the poor mother, that I could not spare a moment for her now lifeless offspring. It was not fat, in the ordinary acceptance of the term, but the framework was large, and the entire osseous development prodigious; and I am sure that it might have passed for a child five or six months born.

This case is very interesting and instructive. It shows that the fact of a woman having borne two children to her full period, and then given birth to them with comparative facility, forms no guarantee that her future labours, even with the head presenting, and no obstruction in the maternal structures, shall be free from the perils of impaction. And if any practitioner is disposed to question the propriety of the treatment pursued in this case, and say that because the maternal passages had twice transmitted a perfect life into the light of day, they might have again done so, had more time been allowed, I answer that the passages were truly enough the same, but the thing transmitted anything but the same. The same mother as before, but *not* the same child. Nothing would have saved this woman but the destruction of the fœtus. The operation was undertaken at the right moment, and had there been any further trusting to Nature, who did her best (as she always does), and failed, the case must have terminated fatally from the subsequent exhaustion, and the chance of inflammation.

My impression is, that this lady was right, or very nearly right, in her calculations, and that the child was something like three weeks "over-due." To state such a conviction is to affirm that which has so often furnished matter for physiological and forensic litigation. The great osseous development of the fœtus prevented its descent into the pelvic cavity: this also deprived the uterine walls of efficient and concentrated muscular power.

I have to thank my friend, Mr. Asbury, for taking charge of the case for several days during my absence from home.

Medical Societies.

MEDICAL SOCIETY OF LONDON.

SATURDAY, OCTOBER 11TH, 1856.

DR. CHOWNE, PRESIDENT.

THIS was the first meeting of the session. There was a full attendance. On taking the chair, the PRESIDENT made some remarks on the past career of the Society, of the general amenity which prevailed amongst the members, of the practical value of the papers, and of the interest attached to the pathological specimens exhibited previous to the commencement of the reading of the paper for the evening. He referred to the recent appointments of officers of health in the metropolis—appointments which had, in the main, been filled by able and talented men, whose labours would confer a benefit on the profession and the community.

Mr. Hunt related a case of

IDIOPATHIC TETANUS IN A CHILD,

seven months of age, who, after being a short time in London, returned to the country, where she became feverish and fretful. Purgatives were

given, and the gums lanced; there was a remarkable prominence over the fontanelle. The child was subsequently seized with convulsions; there was opisthotonos; the limbs were spasmodically contracted; there was strabismus, and laboured breathing. The spasm was permanent for four-and-twenty hours, death then ensuing from exhaustion. Leeches were applied. After death the only part of the body which was examined was the head. The limbs were still rigid; there was little blood in the sinuses of the brain; the dura mater was not injected, or abnormally adherent; the arachnoid was natural, and the brain, on horizontal section, appeared healthy, but there was a quantity of yellow pus between the pia mater and the arachnoid.

Dr. O. WARD remarked that in meningitis of the base of the brain there was a great tendency to retraction of the head.

Dr. SNOW believed that soon after death there was always relaxation of the muscles, and that rigidity followed this.

Dr. O. WARD exhibited some

UTERINE CYSTS,

and in opposition to the opinion of Dr. Hodgkin, that they consisted of dilated vessels of the chorion, expressed his belief that they began to form at an early period of pregnancy, the ovum perished, and the placental tufts proceeded to grow by simple imbibition.

Dr. CHOWNE remarked that the subject of these cysts was one of much interest, particularly with reference to the question of their possible formation without conception having taken place.

FOREIGN BODIES IN THE LARYNX.

Dr. SMILES exhibited the larynx of a man who died during a fit of vomiting supervening on an epileptic seizure. Death was found to have resulted from a quantity of food having escaped into the larynx.

Dr. SAMUEL GRIFFITH mentioned the case of a drunken man who died suddenly after being thrust out of a public-house. Death had resulted from a piece of meat projecting from the throat into the larynx.

TRAUMATIC ANEURISM.

Dr. THUDICHUM related the case of a boy, who, after having been kicked in the abdomen and side, suffered considerable pain in these regions. He died suddenly about three weeks afterwards, when apparently improving. Two pints of bloody serum were found in the cavity of the abdomen, and two traumatic aneurisms were found in the aorta, one immediately below the origin of the spermatic arteries, and another a little inferior. Three symptoms were present in this case, which were explained by the after-death appearances: the testicles were remarkably retracted, from the aneurisms having drawn up the spermatic arteries; œdema of the scrotum arose from the pressure excited by the aneurisms on the spermatic veins;

and suppression of urine was produced by pressure on the ureters. The boy suffered from valvular disease of the heart, consequent upon rheumatism.

Dr. WILLSHIRE exhibited the

KIDNEY OF A CHILD SHOWING COMMENCING "INFARCTION" OF THE TUBULI URINIFERI BY URIC ACID SALTS.

It illustrated a point in the history of commencing *extra-uterine* life which had been lately much discussed in Germany, but which in this country and in France is as yet uninvestigated ground. Dr. Willshire stated his belief that this was the first occasion the particular condition of the renal organs now before the Society had been publicly demonstrated. The present specimen was further interesting from the fact that it formed the third which had been recorded of a necessarily small sub-group of examples in the general class of cases he was now alluding to. It was taken from a child who died *in partu*, after having breathed, and went to show that "renal infarction" might at least commence in the living child after labour had begun, but previous to its entire separation from the maternal system. Hitherto 428 infants had been examined in connexion with the question before them: of these, 113 were dead-born, and *not one* exhibited the renal infarctus; 216, living from one to sixty days, exhibited it; 2 dying during birth (the present case being one), and 1 soon after birth, showed the infarction commencing. The remainder presented no traces of it. Many points of much interest were connected with the subject, and not the least so the question as to how far the condition of the kidney before them could be employed in a forensic argument in a case of suspected infanticide. Dr. Willshire also stated that circumstances had occurred in connexion with the supra-renal capsules in the present case which led him to attach weight to the late statement of M. Brown-Séquard, that these agents have to do with "pigment formations," and consequently support some recent views of Dr. Addison.

SATURDAY, OCTOBER 18TH, 1856.

Dr. ROUTH, V.P., IN THE CHAIR.

APOPLEXY OF THE SUPRA-RENAL CAPSULE; FRACTURE OF THE SECOND AND THIRD RIBS; HORIZONTAL COMMINUTED FRACTURE OF THE CLAVICLE.

Mr. CANTON related the following case, and exhibited specimens in illustration of it. A female, aged seventy-eight, was admitted into the Charing-cross Hospital under his care, in consequence of her having fallen from the top to the bottom of a flight of stairs. There was great ecchymosis over the left shoulder and subclavicular region, accompanied by severe pain on the slightest motion. The patient never rallied from

the shock of injury and died at the end of a week. At the autopsy, the clavicle was found to be almost horizontally split and partially comminuted in that portion of it included between the attachment of the coraco-clavicular ligaments and its articulation with the scapula. The second and third ribs were fractured. Mr. Canton made a few observations on the former injury, and referred the fellows of the Society to the work of Mr. Smith (of Dublin) for further information. In respect to the ribs, the rarity of their fracture in the superior region of the chest was considered to be due to the protection afforded by the clavicle and pectoral muscles in front of the arm externally and the scapula behind. The viscera of the thorax and abdomen was healthy, but in the latter cavity there was found a circumscribed clot of blood, of the size of a small orange, abutting upon the right kidney. Its isolation and form were, at the time, regarded as very peculiar, when the laxity of the cellular tissue in this situation is considered; but further inquiry proved the mass to be the right supra-renal capsule, somewhat displaced and greatly distended—but unruptured—by the effusion within it of blood which, on section, showed in its whole circumference an envelope of supra-renal tissue. Mr. Canton referred to the observations of several anatomists who differed in opinion as to whether or not the capsule contained a cavity. The fellow organ was in all respects healthy.

SCIRRHUS. RESECTION OF JOINTS.

Mr. PRICE exhibited a scirrhus breast, removed from a woman fifty-four years of age. It was in the state of change to softening; the axillary glands were extensively affected; but, judging from the result of past experience, he did not think this a sufficient reason for non-interference. He also exhibited some portions of bones which he had resected. The first was the case of a boy, nine years of age, who had suffered from abscess of the knee-joint for a long time. Mr. Price removed the articulation and the patella. The cancellated structure of the bones was healthy. In the second case the patient was a young woman who suffered from complicated disease of the knee-joint, and also from an abscess external to it. The disease had resulted on mischief commencing in the synovial membrane, followed by suppuration and disease of the cartilage, with caries and necrosis of the bone. Both these cases did well.

AFFECTION OF THE TONSIL.

Dr. ANDREW CLARK related the case of a gentleman who, whilst at breakfast three weeks since, was seized with a violent expiratory effort, attended by vomiting, consequent upon a particle of food having escaped into the trachea. He shortly afterwards expectorated a small body, having somewhat the appearance of a hydatid. A few days afterwards he brought up a similar substance. Some doubt existing as to the nature of the body, Dr. Clark was consulted. The patient was a

stout, healthy man, but rather thinner of late, on account of anxiety respecting the nature of his malady. The chest was healthy, and the general health good. On examining the throat carefully, he observed a small elongated body attached to one of the tonsils, which on removal proved to be one of the follicles of that gland, elongated, enlarged, and full of fluid. The substances formerly expectorated were of the same kind. The patient soon recovered.

ON INCISIONS INTO JOINTS.

Mr. GAY commenced his paper by remarking, that three years ago he brought before the profession, through the medium of this Society, a method of treating certain forms of articular disease by free incisions into the affected cavities; but that since that period his experience of this treatment had led him somewhat to modify his views, and had enabled him with more distinctness to define the particular forms and stages of disease for which it is more specially adapted. His object in making incisions was not merely to evacuate matter, as in the case of an ordinary abscess, and as this proceeding has been adopted and recommended by others, but as well, and even chiefly, for the purposes of allowing the more ready escape of cartilaginous or bony *débris*—often a cause of destructive irritation to a joint—and of setting up reparative action by making a closed or partially closed and diseased sac a part of a large and externally communicating wound. The results of his experience, as of that of many of his professional brethren who had adopted his views, had been still more to convince him that free incisions were of the greatest value in those forms of disease to which they were appropriate, inasmuch as they bring the diseased processes to an equally speedy termination as after resection of the joint, and have the greater merit of leaving the limb less mutilated, and the joint often almost as useful as before. Moreover, the incisions are comparatively harmless, and, in case of failure, do not lessen the chance of restoring the limb that resection, or other measures of a graver nature, might afterwards afford.

The first case, that of a lady aged forty-three, who had suffered for three years from all the symptoms of disease of the cartilage and bony structures of the knee-joint, and had come to town to have the limb amputated. On making an incision into the joint, over the seat of the principal pain, a small quantity of sero-purulent fluid trickled out with the blood. On examining the interior of the joint carefully, the cartilage was found to be entire, but slightly uneven, leading to the conclusion that the affection commenced in the synovial capsule, and had not seriously implicated other structures. The intense pain from which this lady suffered, especially at night, prior to the operation, was completely relieved by it; and with the exception of a rigor on the day following, succeeded by slight fever, which soon yielded to treatment, not a bad symptom followed. The capsule soon healed, and in a month the patient

began to walk about. She has since (three years having elapsed) enjoyed the perfect use of her limb.

The second was a case of hip-joint disease of three years' standing. A sinus, having two external openings, led into the joint. The limb was bent upon the trunk, and the joint still flexible, but with great pain. The discharge had almost ceased, and the diseased action appeared to be almost stationary, and had been so for several months. The joint was fairly opened by enlarging the sinus; the head of the bone had been partially removed, and was bare. The joint recovered completely after fourteen weeks, with considerable mobility, quite enough to make the limb useful.

The third case, of "strumous" disease of the articular cartilages of the knee-joint of long-standing in a boy nine years old; the pain was severe, and the discharge profuse. The incision did not answer in this case, the disease making progress subsequently, as though pursuing its natural course, with the addition of a severe wound, which refused to heal.

The fourth case, of "strumous" disease of the knee-joint of three years' standing, in a girl twelve years of age. The joint was greatly distended, and had been so for more than six months. It was opened, a considerable quantity of sero-purulent fluid exuded, and, in defiance of every attempt to keep it open, the wound healed in three weeks, leaving the joint in the same condition as before. It was opened again after six weeks, and from this time the course of the disease was onwards; and removal of cartilages, caries of the ends of the bones, with profuse discharge, and failure of health and strength, followed. The treatment in this was of no avail; at last amputation of the limb was resorted to. The articular ends of both bones were carious, and the spongy texture of the bones intensely inflamed for some distance along their respective shafts. No traces of tubercle were found, but small deposits of pus in those parts of the bone where the inflammation was most severe.

The fifth case, a woman, aged sixty-two, for disease of the joint belonging to the phalanx of the forefinger. It had existed six months, and remained stationary. The joint was quite loose, and grated when moved, also painful. A free incision on each side, and keeping the wounds plugged, led to speedy ankylosis.

The sixth and seventh cases were of hip-joint disease in children, of seven and eight years of age respectively. The disease in both cases was in its early stages, and in one only had a sinus been formed. The joints were opened freely, but with somewhat varied results. In both, fresh abscesses formed, and burst on the front of the thigh. In one, severe pain in the knee-joint followed, which could only be palliated by blisters, mustard poultices, and opium; in the other, symptoms of rapid pulmonary phthisis. These, however, subsequently yielded, and in both cases, after some weeks, the joint disease relapsed into its ordinary forms, the discharge in each being profuse, and the health bad. The incisions in these cases were useless.

The last case was of a lad, aged twelve, who had symptoms of subacute inflammation of the knee-joint. After three weeks of severe pain, a small opening was made into the joint, and some matter passed away. This did not give much relief. The wound ulcerated, and soon after an opening formed spontaneously, nearly two inches from the first, which also led into the joint. Very little matter exuded, and the joint continued extremely painful. Some white (apparently) sloughy matter could be seen through these openings. Chloroform was given, and the joint laid open by an incision which passed through the two sinuses, and a large "pus-clot" was removed, which appeared to have filled the joint to painful distension. Suppuration followed, and the joint rapidly recovered, the lad being able, in six weeks, to move about by means of a stick, the joint being entire. There were no indications of bone-disease in this case.

After making comparisons between these several cases, the author drew the following practical conclusions:—That joints might be opened with advantage—1st. In cases of chronic inflammation of the synovial capsule of a joint, with effusion into its cavity, and pain; especially if these symptoms shall have been of long standing, have resisted ordinary remedies, and are associated with marks of declining health, as in the first case. 2nd. In cases of acute or subacute synovitis, where the symptoms are unusually severe, and the external coverings of the joint indicate a tendency to ulceration; or where, after a reasonable period, the symptoms do not remit, but indicate the existence within the joint of matter, which, from its becoming a source of irritation, threatens to produce more serious mischief, as in the eighth case. 3rd. In cases where the joint is occupied by bony or cartilaginous *débris*, which, from the small size of existing sinuses, cannot find exit; and 4th. In cases of carious disease of the bones, in which, from diminution of pain and secretion, as well as from other confirmatory symptoms, the disease in which the local affection has originated, shall appear to have exhausted itself, as in the second and fifth cases. He condemned the practice (except for the purpose of relieving severe pain) in all cases in which a chance remains that the joint will recover without; and especially in what are termed "strumous" affections of the joints, so long as the continuance of profuse discharge indicates that the constitutional disorder, in which it is presumed to have originated, has not burnt out; and in the event of this becoming exhausted, only when the persistence of sinuses but slightly discharging beyond a reasonable time might lead the surgeon to suspect either the existence within the joint of some dead and irritant matter, or the want of some general stimulus to final and reparative action, which connecting a diseased sac with an external wound would supply.

Mr. STEPHENS related the case of a man, admitted under his care, with acute pain in the foot and ankle-joint, which was affected with a large ulcer and several sinuses, which ran into the articulation. Amputation had been thought of; but

he opened the joint, and extracted several pieces of dead bone. The man recovered, with simply a little ankylosis of the joint. He related also the case of a man who wounded one of the phalangeal-metacarpal articulations with a gimlet. Mischief ensued, but a cure was effected by passing a probe into the joint and rubbing off its diseased surfaces. He mentioned a case, (occurring in the practice of his colleague, Mr. Chance) of a girl whose knee-joint was resected for extensive disease. The girl was strumous and unhealthy, and several bad symptoms supervened. Under constitutional and instrumental treatment she eventually got well. Many cases of diseased joints did well under the aid afforded by instruments, and without any operative procedure.

Mr. ROGERS-HARRISON referred to the many cases of joint disease which got well under simple rest and constitutional treatment.

Mr. HEADLAND dwelt upon the importance of selecting the proper time for surgical interference with diseased joints. If operated upon before the disease was fully established, its removal from the joint was usually followed by its appearance in some other part. Mr. Gay had failed to indicate the exact cases in which his operation was applicable. The analysis of his cases showed that in some instances the joint might be opened without the patient suffering materially, whilst in a few cases, in which matter of an offensive character existed in the articulation, an incision into it was made with advantage. In others no obvious good followed the proceeding, and others would have done as well had no operation been performed. It would seem, from experience, that some cases were aggravated by incision, particularly when inflammation was going on, and the nervous system and constitution had suffered much; whilst in those instances in which there was pain only, without constitutional disturbance, an incision might be of advantage.

Mr. PRICE said that Mr. Gay had spoken of scrofula as though it were confined to the joint. Struma, however, affecting the joint commenced in the cancellous structure of the bone, in which it might lodge for a long period. It afterwards found its way into the joint by ulceration, and then the bone sought to remedy itself. If there was a ready escape into the joint, and from thence by sinuses externally, many cases did well. Paris surgeons were employing injections of iodine into diseased joints, but without any good results.

Mr. H. SMITH had tried the plan proposed in several cases with partial success. When unsuccessful, however, it did not interfere with any subsequent operation, such as amputation or resection.

Mr. HANCOCK was glad Mr. Gay had modified the opinions he expressed before the Society three years since with respect to this operation, which then was, according to his views, of universal application. It now appeared applicable only in those cases in which the joint was entirely destroyed, or there was no articulation at all to treat; hence the danger of opening the articula-

tion was diminished. When acute disease of the joint was in progress, an opening into it only aggravated the mischief. His (Mr. Hancock's) own experience proved this. He had done a great deal of mischief by following the mode recommended by Mr. Gay in the larger joints. The plan, however, was not new. Mr. Lynn had employed it in cases of disease of the smaller joints twenty-five years ago. When free incisions were made, it was rarely found necessary to amputate the phalanges of the fingers. Mr. Lynn had employed the operation on the elbow-joint, but not on the knee or hip.

Mr. GAY having replied, the Society adjourned.

SATURDAY, OCTOBER 25TH, 1856.

DR. CHOWNE, PRESIDENT, IN THE CHAIR.

GREAT part of the evening was occupied by a discussion respecting a change in the laws of the Society.

Dr. SEMPLE exhibited a plant of

Datura tatula,

of an arborescent form, and nearly six feet high. He was anxious to draw attention to the fact, that *stramonium*, which is known in certain cases to exercise a very powerful influence upon the system, has fallen almost into disuse, owing to the uncertainty of its operation. This is probably due to the fact, that the specimens of *stramonium* used in medicine, are obtained from different species of *Datura*, and he was assured that the *Datura tatula*, the plant now exhibited, yielded a very powerful and efficacious medicine, while the *Datura stramonium*, the indigenous weed of our own country, which is a small and humble herbaceous plant, possesses very little therapeutic action. Dr. Semple exhibited some cigars, made of the leaves of *Datura tatula*, prepared by Mr. Savory.

Dr. EDWARD SMITH read a paper

ON THE NATURE OF PHTHISIS, AND PARTICULARLY OF THE PRE-TUBERCULAR STAGE.

After pointing out the advantages of special hospitals in the study of diseases, the object of the author was to show—1st, That the treatment of phthisis, in order to be commonly successful, must be in the pre-tubercular stage; 2nd, That there is a pre-tubercular stage which is capable of easy demonstration, and in which treatment would commonly prevent the deposition of tubercle; and 3rd, That the nature of phthisis essentially consists in a lessened inspiratory action of the air-cells of the lung. He admitted that phthisis is induced by a multitude of causes, but he affirmed that the tendency of all these is towards exhaustion, and that they, although many, have one common mode of action in inducing the disease. He criticised minutely the prevalent opinion, that phthisis is a disease of the blood, and proved that whatever may be the state of the blood in the disease, there is no universal condition of it which attends the origin of the disease, or which is really

causative of it. The state of the system, which is one of the causes of phthisis, is one of both solids and fluids, and is to be expressed rather by a general predisposition to the disease than by the specific state of a part of the system—viz., the blood, in which the elements of the disease had never been found, or had been directly transmitted to another system. He also proved from his own investigation, that the function of alimentation was not at fault as causative of phthisis, by showing that the quantity of food taken in the early stage is equal to that in health; and by reference to the feces, solids in the urine, biliary and cuticular excretions, he showed that there was then no larger excretory waste than occurs in health. The lessened action of the air-cells he proved from the lessened vital capacity, feeble respiratory power, and lessened mobility in the early stage of the disease, the consequent lessened vesicular murmur, increased harshness of respiration and flattening of the chest, with or without slight dulness, indicative of atrophy of the lung. He also proved that the signs of lessened vesicular action are found in all those cases, which, by common consent, are said to be prone to phthisis, and mentions instances in his own practice at the hospital, in which the vital capacity was reduced to the extent of two-thirds, or half of the healthy quantity, without there being any evidence of the deposit of solid mater in the lung. This stage or lessened vesicular inspiratory action, without any evidence of tubercular deposition, he designated as the first stage of the disease, one in which every hope of success may be entertained from suitable treatment. The second stage was that of tubercular deposition, and the third, that of destruction of tissue, whether to the extent of softening only, or to the further degree of the formation of a cavity. He then proceeded to show the connexion between the act of inspiration and the circulation through the lungs, and the importance of maintaining a balance between the systemic and pulmonic circulations, and explained the especial liability of the apex of the lung to tubercle, by a consideration of the mode of action of the lung, whereby the cells at the apex must at all times be less perfectly distended than those at the base, and consequently have less circulation and vital influence. He discarded the notion of the deposition of tubercle in the lung from the blood, and having referred to Dr. W. Addison's theory of the formation of tubercle on the lung from degenerated epithelium, showed how readily the air-cell is rendered fit to be a receptacle of such morbid products when its action and vital influence are lessened or lost. The extreme liability of the lungs to the deposition was not from any question relating to the blood, but from a consideration of the peculiar action of extrusion and retraction of the air-cell, (as he had demonstrated,) and from the immense number of such filled receptacles as the air-cells of the lungs offered. He believed that phthisis and scrofula are distinct diseases, and that whilst they may be sometimes causative of each other, their co-ordi-

nate occurrence was chiefly accidental. Dr. Smith also explained the occurrence of hæmoptysis before the deposition of tubercle, upon the principles now laid down, and pointed out the impropriety of any attempt to arrest it directly, and also of interfering with that degree of increased frequency of respiration and pulsation which Nature sets up as a prophylactic measure when the amount of circulation in the lungs is so greatly lessened as it is in all stages of phthisis. The discussion of the proper treatment based upon these views, was reserved for a future occasion; but he strongly urged his professional brethren to recommend to the community the importance of a frequent examination of the chest of the younger members of families, with a view to the detection of the disease in its pre-tubercular stage.

Dr. SEMPLE considered that great praise was due to Dr. Smith for his elaborate and ingenious paper, and regretted that a very short time was left for the discussion of a subject of such great importance as the diagnosis and treatment of the pre-tubercular stage of phthisis. That such a stage existed was very probable, and it was of the deepest interest to all practitioners to be able to recognise it. At the same time he thought that Dr. Smith's views were merely theoretical, but that they might be capable of practical demonstration at some future time. Suppose, for instance, that a person who was in the pre-tubercular stage of phthisis, and whose condition had been ascertained by competent physical examination, were to die of some other disease, or by an accident, it would then be possible to verify the diagnosis, and such a contingency might one day occur. At present, however, he (Dr. Semple) thought that the existence of the pre-tubercular stage, although highly probable, was not proved; and if he found a patient presenting the phenomena described by Dr. Smith—namely, dulness on percussion, absence of respiratory murmur, and bronchial respiration, he should conclude that the deposition of tubercle had already commenced, not perhaps in the fully developed form, but in that semi-fluid state which is known to be the first form under which tuberculosis of the lung makes its appearance. With regard to the non-identity of phthisis with scrofula, this was so novel a doctrine that it required much deliberation before it could be admitted. It was true that the external manifestation of scrofulous tumours was not always or perhaps very generally associated with tubercular deposition in the lung; but still there was so complete a resemblance between the matter of scrofula and the deposit in phthisis, that he could not at present believe with Dr. Smith that they were distinct.

Dr. ANDREW CLARK said he had listened with pleasure to Dr. Smith's paper, because he had himself been engaged for some years in the study of phthisis, and because it must be a pleasure to every working man to hear what another had to say who came fresh from the interrogation of Nature at the bedside, and not merely from the study of books or the speculations based upon

them. Dr. Clark would, in the first place, refer to the view of the origin of phthisis which ascribed it exclusively to that state of blood termed "fibrin crasis." The doctrine of "blood crases" developed by Rokitsansky had been adopted almost without question, and upon mere authority, by the majority of English pathologists. He would not, then, stay to show how the doctrine was speculatively unsound, as every exclusive humoralism or solidism must necessarily be; but he would mention one illustration to prove that it was practically untrue. The doctrine of crases was based upon the assumed fact that the blood-clots correspond in structural and chemical characters to the exudations found without the vessels. In a case of advanced phthisis, for example, the blood-clots present the character of croupous fibrin; if the doctrine of crases be true, all the exudations in such a case must present the same characters; if they do not, the doctrine must fall to the ground, not merely because it is insufficient, but because it is untrue. Two bodies were lately examined at the London Hospital on one day. The first died from an injury to the chest, followed by pleuritis; the second died from phthisis, in which pleuritis had supervened shortly before death. In both cases a fibrinous exudation had occurred in the pulmonary pleura. In the first case the lymph was soft, yellow, diffuent, imperfectly fibrous, and studded with irregular cell particles; in the second, the lymph was greyish, semi-transparent, disposed in a nearly uniform layer, distinctly fibroid, and contained few cell particles of any kind. In the healthy man the lymph was croupous; in the phthisical man it was plastic. The contradiction here was obvious and fatal. Such illustrations could be multiplied. Many surgeons know well that healthy lymph could be exuded on fresh-cut surfaces in patients labouring under extensive cancerous deposits. There could be no doubt that the blood was diseased in tubercle and cancer; there could be no doubt, however, that there was also a preceding or coincident change in the solids; there could be no doubt that as yet the changes of the blood were incapable of distinction or definition, and none that the arbitrary and course classification of them into crases were not only inadequate to the explanation of the nature of morbid products, but offered serious hindrances to the advancement of truth. Dr. Smith observed that there were no uniform structural or chemical changes to be found in the blood of phthisis. Dr. Clark would not then enter into the chemical details of the question, but he would mention two uniform structural changes which he had found in the blood of phthisical patients, and the truth of which any one of moderate experience might test by personal observation. The first was the excessive number and altered character of the colourless corpuscles; the second, the diminished number, colour, and elasticity of the discs, most of which were also increased in size. To these two he might add a third, the presence of numerous free molecules and granules. Dr. Smith's idea of the nature of phthisis appeared to be that it was

distinct from scrofula; that it was, in its outset at least, a local disease, and that it essentially consisted in deficient inspiratory action of the air vesicles leading to diminished chemical changes in the residual air. Waiving the physiological part of this question, Dr. Clark could not for a moment agree in the opinion that tubercular scrofulous deposits were distinct local manifestations of distinct constitutional states. The deposits were identical in their structural and in their chemical characters. The state of the fluids and solids during their production was in essentials the same. The deposits were frequently interchanged at different periods of life and under different conditions. The offspring of the phthisical parent exhibited scrofulous diseases; of the scrofulous parent, phthisical disease; and the healing of scrofulous glands was often the prelude to the induction of phthisis. In all respects, whether in relation to cause, to the constitution subject to them, or to their intimate nature, Dr. Clark believed scrofulous and tubercular deposits to be identical—to require the same treatment. Dr. Clark could not agree with Dr. Smith in viewing chronic phthisis to be, in any sense of the term, a local disease. Antecedent to all local deposit and to all changes of the blood, he believed there was a recognisable condition of the mental as well as the bodily parts which was characteristic of the phthisical or scrofulous tendency, and which would most certainly lead to their local development under unfavourable circumstances. The essential characteristics of the psychical as well as the physical constitution were weakness, heightened susceptibility, and a deficient power of restraint in the manifestation of the mental or bodily operations. Psychically, this constitution was manifested by precocity, undue excitability, rapid but unsustained response to ordinary causes of excitement, aptness for novelty, incapacity for regular and prolonged mental pursuit, great emotionalism, and alternating states of exaltation and depression. Physically, the characters were analogous; there was rapid development and growth, which fluctuate under the most trivial influences. In the elements of the tissues and organs, also, there was the same rapidity of growth with a proportionate rapidity of decay. The cell elements of the textures grew very rapidly, and were thrown off before the end of their existence was fulfilled. The epithelium of the lips was always desquamating, the hair and nails growing with unwonted speed; the faces were mixed with abundance of epithelium; wounds rapidly but feebly repaired. Such constitutions were capable of great temporary but little sustained muscular exertion; the circulation was feeble and small; and we wondered at the source of so much apparent animation and vigour. Dr. Clark could not consider diminished capacity of inspiration as the cause of phthisis. It was one of its concurrent phenomena, but did not necessarily induce phthisis, even under unfavourable circumstances. Dr. Clark believed, after numerous experiments, that the spirometer did not, in the majority of cases,

give sound evidence as to the actual capacity of the lungs. Intelligent patients, after repeated practice, could be brought to yield uniform results; but in the conduct of numerous observations at an hospital the results were, on the whole, unsatisfactory. Dr. Clark also stated that patients with limited chronic phthisis often gave the full average results common to their height; whilst hysterical or nervous women, free from pulmonary lesion, did not.

PATHOLOGICAL SOCIETY OF LONDON.

TUESDAY, OCTOBER 21ST, 1856.

MR. ARNOTT, PRESIDENT, IN THE CHAIR.

THE first meeting of the Society for this session was held on Tuesday, and was numerously attended. The place of meeting is much too small, and the bad manner in which it is ventilated renders the atmosphere quite oppressive. From the rapidly-increasing number of members, it is very desirable that another place of meeting should be procured. About a dozen candidates were proposed for admission.

THE PRESIDENT, on taking the chair, congratulated the members on again meeting them in such numbers, and expressed his great satisfaction with the volume of "Transactions" just issued. It is larger than the former ones, and the illustrations, if not as numerous as before, are in character very much superior. The Council are very much indebted to many members of the Society, who forwarded, at their own expense, some of the drawings and illustrations. He would take that opportunity of saying that this is the last volume the editor on his right will superintend. It is the fifth volume of the Society's "Transactions" that has been edited by him, and he has managed each with judgment and ability. (Applause.) To him the members of the Society are deeply indebted for the great labour he has bestowed on the undertaking. (Renewed applause.) Authors are jealous of their productions, and it must be admitted that Dr. Quain had succeeded in pleasing every one. (Applause.) At the next annual meeting it will be the duty of the members to elect another secretary. There will, of course, be two to elect, a medical and a surgical; but as Dr. Quain retires altogether from the office he has heretofore so ably filled, it will be necessary to look round in time to select one who can succeed him. He (the President) mentioned this thus early in the season, in order that it might receive timely consideration from themselves. The expense of the volume which has just been issued has been very great, and has almost eaten up all the funds; at least, when the accounts are settled with the printer there will be but little money in the hands of the treasurer. The great object of the members, as far as that is concerned, must be to lessen, as far as possible, the expenses, and that can be only done by an increase of members. Each member of the Society ought to try and

procure an additional one; indeed, if there were only fifty members added, the expenses would be greatly lessened.

MR. ARNOTT, PRESIDENT, IN THE CHAIR.

Dr. OGLE exhibited a specimen of

PURULENT DEPOSIT WITH THE SUBSTANCE OF THE BRAIN, CIRCUMSCRIBED AND DIFFUSED; DISEASE OF THE TYMPANIC CAVITY.

The abscess was in the right cerebral hemisphere, and was equal in size to a large walnut, its parietes being formed by a dense, leathery, thickish membrane. The brain-substance around, to some extent, was of a pale, yellowish colour, and softened, owing to infiltrated pus. No other affection of the brain existed, except a large accumulation of fluid in the ventricles, nor was any disease of the cerebral membranes or cranial bones visible; but the tympanic cavity on the same side of the head was found to contain a large amount of pink, fleshy growth, like the mucous polypus of other surfaces, the results of organized inflammatory exudation. The drum of the ear was natural, but the external auditory meatus was lined by a firmish layer of exudative material. The specimen was removed from a man aged forty-four, who, whilst in St. George's Hospital, under treatment for acute rheumatism, was affected by ear-ache, which was followed by a thin watery discharge from the ears. In two days after this, the discharge became purulent, and great pain over the right side of the head was complained of, with vomiting. The pupils were noticed as being contracted, and so remained until death. He was leeches and cupped, and varied very much, the sickness going on. A few days before death he was delirious, and two days before he was hemiplegic on the left side. He died comatose.

Dr. OGLE also showed a specimen of

DEPOSIT OCCUPYING THE LEFT OPTIC THALAMUS, OF A FIBRO-CELLULAR CHARACTER.

The optic thalamus was almost three times its ordinary size, and was glossy and of a yellowish hue, very soft, and appearing as if it contained fluid; it, however, was quite solid, and its increased size was found to be owing to the universal presence of most delicate and exquisitely small fibres, which were very long and straight, and contained very clear, large nuclei. Moreover, numbers of large cells, with three and four nuclei, were found amongst them in places. The patient from whom the specimen was taken was brought into the hospital supposed to be suffering from fever. Her headache and sickness increased, and she became comatose, and died one month after admission. Fluid was also found in the cerebral ventricles, whose walls were much softened.

Mr. PART placed before the Society

A DRAWING OF A CASE OF WARTS WHICH HAD BEEN CURED BY THE INTERNAL EXHIBITION OF MAGNESIA.

The patient is a young gentleman, twenty-one years of age. He was born in China, of European parents, and finished his education at Lausanne, in Switzerland. When about sixteen, without any cause of which he was aware, he began to be troubled with warts on various parts of both hands, but chiefly about the edges of the finger-nails. They gradually increased in size and number, until he could not put on a glove, and the appearance of his fingers was a source of continual annoyance to him. At length he sought the advice of an eminent Swiss operating-surgeon, who repeatedly removed them by the knife, and then cauterized them. These means proved of no avail, and he had long given up his case as hopeless. Having to consult Mr. Part for another malady, his attention was at once attracted to the condition of the patient's hands, and having seen an account of a case cured by magnesia in the twenty-seventh volume of "Braithwaite's Retrospect," and quoted from *La Presse Médicale* of Brussels, Mr. Part prevailed upon his patient to try that remedy. This was on the 2d of August, 1855. The appearance of the hands at this time was very repulsive. Six or seven of the nails were almost entirely surrounded by the morbid growth, which has all the appearance of a common wart. The treatment was continued until the beginning of November, without any local or external application whatever, at which period the whole of the warts had entirely disappeared. Although the disease may be deemed of little importance, in the case before us it had assumed a degree of inconvenience and annoyance which made the life of the patient wretched.

Mr. PART also exhibited a specimen of

DISSECTING ABSCESS IN THE LOWER EXTREMITY IN A CHILD FOURTEEN DAYS OLD.

It had remained well until the fourth day, when it showed symptoms of suffering pain, and inability to move the limb or allow it to be touched. About the eighth day, the limb was observed to be swelled, and spots of slight discoloration were noticed. On the tenth day, there was evident fluctuation; and on opening two of the tumours, a teacupful of thin, sero-purulent fluid escaped, which gave relief. In a few hours, however, the child began to sink, and died twenty hours after the pus had been evacuated. A large cavity was found after death, extending from behind the internal malleolus below to within half an inch of Poupart's ligament above, the sartorius and gastrocnemius being almost entirely dissected out; the cavity extended almost round the front of the knee, but did not communicate with the joint; a small portion of the head of the tibia was denuded of its periosteum. The liver was intensely congested, and studded with small collections of pus. The pericardium contained about three drachms of serum, and the portion covering the heart was entirely covered with a thick layer of

lymph. The pleural cavities contained serum. The right lung was pale, with the exception of some spots of lobular inflammation in the stage of congestion. The left lung was generally congested, and bound to the pericardium by a band of lymph, the breadth of a finger.

Mr. HENRY THOMPSON exhibited

THE PROSTATE GLAND FROM A MAN AGED SIXTY-TWO, CONTAINING AN INTRA-GLANDULAR TUMOUR,

isolated from the surrounding structure by a proper capsule. It was connected with the intermediate portion of the gland, and produced an obstruction at the neck of the bladder during life. Sections of the tumour, made by a Valentine's knife, were placed under the microscope, for the purpose of showing that its composition was not simply fibrous, as is sometimes the case with these tumours, but that it was made up of true glandular tissue, as evidenced by the appearance of ducts, nuclei, and also of the bodies familiarly known as "concretions," and occurring almost invariably in the adult prostate. The weight of the entire organ was seven drachms and a quarter, or about double that of the normal gland.

Mr. THOMPSON also showed

THE VEGETABLE FUNGUS PRESENT IN COMMON RINGWORM (TINEA TONSURANS), FROM A BOY AGED TEN YEARS.

Diseased hairs were placed under the microscope, showing the sporules of the fungus "trichophyton tonsurans," and also numerous filaments, the latter being very rarely observed. The sporules are seen in the root and in the substance of the hair, from which they emerge, and are then observed to take a linear arrangement, ultimately becoming filaments on the outside of the hair.

Also, a specimen of the vegetable growth, "Achorion Schöulcinii," seen in the crusts of Favus.

Dr. BRISTOWE exhibited a specimen of

CYSTIC DISEASE IN THE LIVER, ASSOCIATED WITH SIMILAR DISEASE IN THE KIDNEYS.

The liver was rather large, and its substance was thickly studded with cysts, from the size of a Spanish chestnut downwards. Some of them were single, but most of them were clustered. Their parietes were formed of condensed cellular tissue, and were for the most part thin. Their contents consisted of a transparent, limpid, serous fluid. There was no other disease of the liver. The kidneys weighed between two pounds and two pounds and a half each; they consisted almost wholly of cysts, from the size of a hen's egg downwards. The cysts presented the same characters in regard to shape and parietes as those in the liver, but their contents varied considerably, those of some being thin and serous, those of others thick and puriform, while several contained grumous material, like decomposed clot. The chief points of interests were—1st, the extreme rarity of cystic disease in the liver; and 2nd, the remarkable combination of the same form of disease

in the liver and kidneys, which Dr. Bristowe was inclined to regard as accidental. The patient from whom these specimens were taken was a shoemaker, aged fifty-three, who stated that he had been ill only ten weeks, but gave no history that could throw any light on the nature of the disease.

Dr. BRISTOWE also exhibited a heart, the coronary arteries and branches of which were thickly studded with small aneurisms. Some of them formed hemispherical or spherical enlargements from the size of a pea downwards; others were sacculated, and occupied from half an inch to an inch or two of the length of an artery. Some of them were filled with old buff-coloured clots. The heart in other respects was healthy, and there was no disease of any of the systemic arteries. The patient from whom the specimen was taken was a sailor, twenty-two years of age, who was supposed to have died of fever.

Dr. OGLE presented

A CYST CONTAINING CLEAR FLUID, CONNECTED WITH THE UNDER SURFACE OF THE CEREBELLUM.

The specimen showed a cyst containing six ounces of clear fluid, situated between the outer surface of the cerebellum and the posterior surface of the medulla oblongata,—occupying, in fact, the fourth ventricle. It pressed considerably into the cerebellum, the surface of which was softened by it. Its walls were composed of very delicate, friable, fibrous tissue, containing scarcely any corpuscular elements. It was removed from a patient aged eight years, who had had an acute attack of hydrocephalus three years previously, and had been subject to slight renewals ever since at times; the strabismus and dilated pupil combining. He died in a fit of convulsions. On examination after death, the ventricles were found to be enormously dilated, holding a pint of fluid; and it seemed as if the cyst was simply formed by the hemming in and accumulation of fluid in the fourth ventricle, the adhesions resulting from the early inflammatory action acting as a limitary membrane. The case was brought forward by Dr. Ogle as a companion to others shown by him, on previous occasions, as illustrating the method of formation of cysts about the membranes of the brain.

Dr. OGLE related the particulars of

A CASE OF COMPLETE PARALYSIS AND ATROPHY OF THE RIGHT UPPER EXTREMITY, CONNECTED WITH A LARGE CYST IN THE CORPUS STRIATUM.

The upper extremity was much shorter and thinner than its fellow, the fore-arm being much flexed on the arm, and the fingers on the palm of the hand. There was no power of movement in it. There was also very imperfect and slight paralysis of the right leg. In no part was sensation diminished. The patient, a man of middle age, died of diseased bladder, in connexion with enlarged prostate and pelvic abscess. It was said that he had been paralysed as above-mentioned since he was an infant. On examination after death, the brain was found to be natural, excepting that

about one half, or more, of the left corpus striatum was wanting, the vacancy being supplied by a cavity containing clear fluid, whose upper part was the thickened lining of the ventricle. Very small parts of the contiguous surface of the optic thalamus seemed to be affected, but only slightly, by the cyst.

Dr. OGLE then gave the particulars of a case of

ANEURISM OF THE MIDDLE CEREBRAL ARTERY
BURSTING AND PRODUCING SUDDEN DEATH.

The aneurism, of the size of a small walnut, was seen at the base of the brain by separating the middle from the anterior cerebral lobe on the left side, and had burst at its upper part, breaking down the outer part of the corpus striatum, and much of the middle part of the left hemisphere, the blood making its way into the ventricles, the septum of which was destroyed. The large arteries at the base of the brain were not atheromatous. The patient, a man of middle age, with marked arcus senilis, had been subject to fits of a short duration for some years. On the day of his death he had had a very good dinner, and shortly afterwards was attacked by total unconsciousness, in which state he remained for a few hours, and then died. There was no convulsion noticed, and the pupils of both eyes were very greatly contracted. The kidneys were found to be diseased. The heart was natural, its cavities being empty, and the left ventricle contracted.

Dr. OGLE also related the particulars of a

CASE OF ATROPHY OF THE OPTIC NERVES, COMMISSURES, AND TRACTS, IN A PERSON BLIND FOR
TWELVE OR FOURTEEN YEARS.

The patient died of diseased heart and kidneys. The optic nerve on both sides, the commissures, and both tracts were very much shrunk, and of a yellow, translucent colour. The nerves were mostly shrunk. On microscopical examination, the nerves showed positively nothing but granular matter and delicate fibrous tissue, whilst the tracts showed mixed with it many nerve-fibres, containing much granular and distinctly refracting large fatty particles, some of the nerves being perfectly homogeneous, and wanting in their usual anatomical looks. The other parts of the brain were natural.

Mr. JOHN WOOD exhibited a specimen of

PELVIS OBLIQUE OVATA,

in which the left sacro-iliac joint was ankylosed, and which presented the following alterations and differences in diameter:—At the brim, the right oblique diameter measured four inches eleven lines, being five lines less than the left oblique diameter. The distance from the sacral promontory to the left acetabulum is three inches four lines, being six lines less than that to the right acetabulum. A direct antero-posterior line cuts the left pubis about seven lines external to the symphysis. At the outlet, the antero-posterior diameter is contracted to three inches two lines. The other diameters are of the average extent.

The external oblique measurements present, in a limited degree, the inequalities characterized by Nægelé. The distance from the left sciatic tuberosity to the right posterior superior iliac spine is seven inches two lines, and less than that from the right sciatic tuberosity to the left posterior superior iliac spine by six lines. From the last lumbar spine to the left anterior superior iliac spine measured six inches six lines, being five lines less than the distance to the right anterior superior iliac spine. The site of the ankylosis presented a distinct line of cicatrix anteriorly; and its distance from the centre of the sacral promontory is two inches only, being ten lines, or nearly an inch, less than the distance to the right sacro-iliac joint from the same place, both measured along the curve. The length of the left iliac is three lines less than that of the right, measured to the ilio-pectineal eminence along the curve. The arrest of development is thus, as usual, much more marked in the sacrum than in the ilium on the ankylosed side. This is to be attributed, in Mr. Wood's opinion, to the non-formation of the lateral epiphysal plate of the sacral auricular facet, caused by the ankylosis.

The distance of the border of the sacrum from the centre opposite the two last sacral pieces is equal on both sides, showing that the lower of the two lateral epiphysal pieces is not arrested in its development. In more extreme cases of this deformity, the ankylosed side of the sacrum is much more contracted, and the origin of the ankylosis is probably intra-uterine, and takes place before the sixth or ninth months, preventing the formation of the three characteristic ossific centres, close to the sacral foramina. On the other hand, there are many specimens extant of sacro-iliac ankylosis *without* oblique deformity. In these cases the disease has evidently occurred after the full development of the pelvis. In the present specimen, the ankylosis has taken place after a considerable advance in the normal development, and probably about the period of puberty. This opinion is founded upon the distinctness of the cicatrix, and the limited degree of the deformity.

After alluding to the theories of M. Gavarret and Dr. Matthews Duncan in explanation of this deformity, Mr. Wood proceeded to explain his own views on the effect of interstitial surface, and epiphysal or double surface growth on the development of bones in a circle or globe. Interstitial growth takes place in layers, coincident with the radii of the centre of the circle or globe; it is greater at the external than at the internal surface of the bone, and consequently gives little circular expansion. By the disposition of the surfaces of the symphysis pubis parallel to the antero-posterior diameter of the pelvis, the surface and epiphysal growths here tend to increase very rapidly the transverse diameters by their parallel superimposition of the layers of bone. By the convergence of the planes of the posterior parts of the sacral auricular surfaces to a centre at, or anterior to, the symphysis pubis,

the laminations of these surfaces fall in radii of a constantly advancing centre, and the bone grows, at its ends, in a constantly enlarging curve. This curve is still more enlarged by the divergence of the planes of the anterior parts of the same surfaces. From the position of both the sacral facets at the posterior part of the pelvic circle, this expansion of the sacral curve acts chiefly on the transverse diameters, and proceeds very rapidly after the period of puberty, when the sacral epiphyses become developed, rather more than counterbalancing the pubic expansion of the pelvic circle anteriorly. In the oblique ovate pelvis the sacro-iliac ankylosis has destroyed the surface and epiphysal growths, and the increase here is interstitial only. To this results the loss of equilibrium in growth of the two sides, and the first impress of the deformity on the pelvis. Another and more powerful element of disturbance now comes into play. The pelvic circle is made up of three arches: one central, the sacrum; and two lateral, the ilio-pubic: the former supporting on its culm the weight of the trunk; and the two latter, the pressures of the femora. The sacral arch and the iliac halves of the ilio-pubic arches, make up together one arch, the cotylosacral, through which the line of pressure passes from the trunk to the legs. This is supported at its haunches by the posterior sacro-iliac ligaments just where it has a tendency to open under heavy pressure. When sacro-iliac ankylosis has taken place, the sacral arch and the ilio-pubic of the ankylosed side are joined in one, which is placed at a great mechanical disadvantage by bearing the weight of the body on one of its haunches, and the pressure of the femur on the other; while the culm, at the point of ankylosis, has no counterbalancing pressure, and little cohesion to resist its tendency to rise or bend upwards. Thus the sacral promontory is made to approach the acetabulum of the ankylosed side, the symphysis pubis is pushed over to the opposite side, and the corresponding leg bears more than its share of the weight of the trunk, and the deformity is thereby increased.

Dr. SEPTIMUS GIBBON exhibited a specimen of

COMMENCING DYSENTERIC(?) ULCERATION LIMITED
TO THE MIDDLE PORTION OF THE ASCENDING
COLON.

William B—, aged forty-four, was admitted into the London Hospital, Feb. 26th, 1856, for slight hæmorrhoids, and supposed disease of the rectum. The account he gave of his illness was, that, last November, he was laid up with severe erysipelas of the left leg, followed by a large carbuncle on the sacrum. At the time of admission, his chief symptoms were slight hæmorrhoids, severe agonizing pain referred to the rectum, constant diarrhoea, the stools being of a pitch-like colour. These symptoms continued, and were but little controlled by treatment during his sojourn in the hospital. He had no rigors, no sweats, no albumen in his urine, and examination could detect no disease in the rectum.

The remedies had recourse to consisted of opiates; sinapisms to the abdomen; gallic acid; opium and sulphate of iron enemata, as well as opium suppositories. The patient obtained little or no relief, but sank exhausted by the pain and flux on the 15th of March, 1856.

On inspection of the body, the viscera of the thorax were found to be quite healthy. On moving aside the coils of intestine a large abscess was discovered in the cellular tissue around the left kidney, extending from the spleen along the course of the psoas muscle to Poupert's ligament. The pus was well-formed, about a pint and a half in quantity. There was no disease of the vertebræ. The left kidney was found to contain several small abscesses in its cortical substance, and, on section, its medullary substance exhibited numerous small, buff-coloured spots or striae, which, under the microscope, proved to be deposits of fat and atheroma. There was also a small abscess in the left supra-renal capsule. The intestinal canal was healthy, with the exception of a few small ulcers at the middle of the ascending colon, situated for the most part in the sulci between the longitudinal bands of the intestine. There was no vascularity or thickening of the mucous membrane around the ulcer, which appeared to have originated by the sloughing of the summits of the enlarged solitary glands, or the distension of the Lieberkühnian follicles. These enlarged glands or follicles appeared to be distended with a transparent jelly-like, muciform fluid: the largest, when laid open, would have received an ordinary-sized bullet into their cavity. No enlarged solitary glands were seen in other parts of the intestine. Other parts of the body were found to be free from morbid alteration.

Mr. SIBLEY exhibited a specimen of

VILLOUS DISEASE OF THE COLON.

This specimen was removed from a tailor, aged forty, who died in the Middlesex Hospital, under the care of Dr. Hawkins. The patient had been perfectly well up to September 2nd, 1854, when he was attacked with cholera. He rallied from this, but continued to suffer from diarrhoea, and passed blood in his evacuations. After suffering from great tenesmus, vomiting, &c., he died six months after the attack of cholera. The only disease discovered in the body after death was in the colon. The whole of this was affected with villous growths from the ilio-cæcal valve to near the anus. These growths were all less than half an inch in length; the mucous membrane covered them, and was not ulcerated. Since he exhibited the specimen of villous disease in the bladder to the Society, Mr. Sibley had compared the structures of these growths with that of the chorion of the fœtus, and he found that the closest similarity existed.

Mr. HUTCHINSON exhibited specimens of
BRONZED SKIN FROM PATIENTS WHO DIED OF CAP-
SULAR DISEASE OF THE KIDNEYS.

Dr. VAN DER BYL doubted the specimens being originally white.

Dr. Baly could decide that point, for the cases were under his care at St. Bartholomew's Hospital, with all the symptoms of disease of the supra-renal capsules. After a time one of the patients left the hospital, but returned again with the same symptoms as before. One morning he was suddenly seized with loss of hearing, and shortly afterwards died. On post-mortem examination, the supra-renal capsules were found nodulated, grey, and softened down. There were no tubercles found in any part of the body. About ten days afterwards the other patient died in the hospital with spinal disease, and disease of the supra-renal capsule was also found, but not to the same extent as in the former.

Dr. VAN DER BYL wished to know if the skin was ever seen decidedly white.

Dr. Baly.—The patient's master saw the skin of the first patient decidedly white. It was bronzed on both occasions of admission.

Dr. KIDD had an opportunity of watching the cases whilst in St. Bartholomew's, and could confirm Dr. Baly's statement.

Dr. OGIER WARD showed

AN OVUM WITH CYSTS,

the same as that exhibited to the Medical Society of London, at its meeting on October 11th.

Mr. SHAW exhibited a specimen of

CANCER OF THE PHARYNX AND ŒSOPHAGUS,

from a patient, aged forty, admitted into the Middlesex Hospital on Thursday last, and who died on Saturday. On admission he suffered severely from difficulty of breathing and swallowing. There was no emaciation. Whilst in the hospital, no nourishment could be passed into the stomach. There was a great projection in the neck, extending up under the angle of the jaw, which was supposed to be scirrhus, but it did not long exist. The patient was formerly under Mr. Henry's care as an out-patient, and according to the account he gave the disease was not of long duration; he supposed but six months. The patient was a cab-driver, and his wife said that for some months he could not attend to his occupation. On Saturday he died very suddenly, whilst his breakfast was being got ready, but there was no suffocation. On post-mortem examination there were found large ulcerations of the right side of the pharynx and glottis. The thyroid cartilages were implicated in the ulceration; some of the glands of the neck were affected; the bronchial tubes were filled with mucus. There were no appearances of cancer elsewhere. On examining the stomach, there was found complete destruction of the mucous and cellular membranes of the stomach, and nothing but the peritoneal coat left. It was a question whether this was not a case of what John Hunter describes as post-mortem destruction of the stomach; there was no appearance of red border at the line of division where the separation of the coats took place. Under the micro-

scope the specimen of cancer appeared to be epithelial.

The PRESIDENT inquired what was the cause of his sudden death.

Mr. SHAW could not well say, unless it was the mucus blocking up the lungs.

ROYAL MEDICAL & CHIRURGICAL SOCIETY.

Mr. CÆSAR HAWKINS, President.

On taking the chair, the President congratulated the Fellows on the number of papers which had been sent in. The thirty-ninth volume of the "Transactions" would be issued in a very short time. The Council had adopted the following resolutions:—

"That, as a general rule, the Proceedings will be issued every two months, subject to variations dependent on the extent of matter to be printed.

"That copies of the Proceedings will be sent, postage free, to every fellow of the Society entitled to receive the 'Transactions.'

"The Proceedings of the Society' may be obtained of Mr. Adlard, Bartholomew-close, on prepayment of an annual subscription of five shillings, which may be transmitted either by post-office order, or in postage stamps; this will include the expense of conveyance by post to any part of the United Kingdom; to other places they will be sent, carriage free, through a bookseller, or by post, the receiver paying the foreign charges.

"That a notice of every paper will appear in the Proceedings. Authors will be at liberty, on sending their communications, to intimate to the secretary whether they wish them to appear in the Proceedings *only*, or in the Proceedings and 'Transactions'; and, in the latter case, they will be expected to furnish an abstract of the communication.

"That, in future, copies of the Proceedings will be furnished to the journals at as early a period as possible after their publication, in lieu of the abstracts formerly furnished by the secretaries. At the same time, the Council do not think it at all desirable to interfere with such reports of the papers read before the Society, and the discussion upon them, as the journals may obtain through their authorized reporters."

REPORT OF A CASE OF TRUE ELEPHANTIASIS. By JONATHAN TOOGOOD, M.D.

The patient was a woman, twenty-two years of age; the disease affected both legs up to the middle of the thigh. The health was good, with the exception that there was diminished secretion of urine. The treatment adopted was a local steam-bath every night to the affected parts, and the administration of fresh squill to act upon the kidneys; the recumbent position was enjoined. An issue was also formed. A complete recovery took place. The author was in the habit of giving the fresh squill in two-grain doses, rubbed down with sugar, and given in almond mixture. The dose was gradually increased.

The PRESIDENT had in one case of elephantiasis amputated the leg. The disease had not only affected the integuments, but the cellular membrane, muscles, and fascia, down to the bone.

ON THE TREATMENT OF ANEURISM BY MANIPULATION. By WILLIAM FERGUSSON, Esq., F.R.S., Professor of Surgery in King's College, London, &c.

The author explained the term to mean a peculiar forcible squeezing of an aneurismal tumour, with the intention of breaking up the fibrine supposed to be within, so that, being displaced, it might possibly block up the distal end of the tumour, or the artery leading from it. After sketching the various means whereby Nature is supposed to bring about occasional spontaneous cures, particular reference was made to certain cases which had come under the author's observation in which spontaneous cures had seemingly been caused by displaced fibrine. He then proceeded to show that, whilst surgeons had in some degree followed the dictates of Nature, as gathered by experience, in their attempts at cure, they had not, as far as his knowledge went, attempted to imitate the actual displacement of fibrine by any active interference on their part. He then explained how he had for many years entertained the idea that a cure by such a plan might possibly be effected. After many years' watching for a case where, for want of a better plan, such a one as he indicated might be used, a case of aneurism of the right subclavian artery, between and outside the scaleni, came under the author's notice in February, 1852, wherein, appreciating all the known danger of the usual modes of treatment, he resolved to try this plan. The flat point of the thumb was laid on the aneurism, which was about the size of a hen's egg, and when the sac was emptied of fluid blood, the lower surfaces and supposed contents were rubbed against each other. The pulse, which had been carefully examined, was immediately arrested in all the vessels below the aneurism, and the patient became faint and giddy. In six or seven hours, the pulsations returned, but the author repeated the manipulation the next day, with a similar but non-lasting effect on the circulation in the arm; for it was not until seven or eight days that circulation could be readily detected in the arteries of the fore-arm. The tumour gradually diminished in size and in force; a pulsation, and various indications, particularly the gradual enlargement of a branch of the subclavian artery at the root of the neck, the supra-scapular, or the transversalis colli, gave every hope that a cure was in progress. After seven months, at which date the tumour was much diminished, the patient had a severe feverish attack, accompanied with excruciating pain in the tumour, and died after a few days' illness. On dissection it was found that the axillary artery was blocked up, and that the tumour had suddenly extended or given way in the direction of the axillary plexus of nerves,

which was supposed to account for the excessive pain. Another case, in most respects analogous to the above, came ere long under the author's notice, and was treated in the same way. A series of phenomena followed, similar in every respect to those observed in the former. The tumour in this case underwent other changes, and ultimately disappeared, between the twenty-second and twenty-fourth month after the manipulations. After discussing the principal phenomena connected with those cases, and expressing an opinion that the results in many respects corroborated the views of the author, he left the particulars for the further consideration of those who felt interested in the subject.

Mr. POLLOCK remarked that Mr. Fergusson had not laid down any rule with respect to the size or kind of aneurism in which he would recommend his plan to be adopted. It would seem, however, to be applicable only to small aneurisms. Had Mr. Fergusson any experience in the matter with respect to the disease when situated in the popliteal space or the femoral region?

Mr. FERGUSSON had no rule to lay down on the subject. The data at present were small; but he could see no special objection to the employment of manipulation in large as well as small aneurisms, except perhaps the greater risk that might be incurred in treating the larger forms of the disease. Cases of aneurism were rare in surgery, and of course the instances still rarer in which a surgeon would feel justified in departing from the usual course of proceeding in such cases. In the kind of cases he had selected, both the operations of Hunter and Wardrop had never been successful, and treatment by a new plan was therefore justifiable.

Mr. CURLING remarked that the proceedings of Mr. Fergusson would seem to be applicable only to those cases in which a ligature could not be placed between the aneurism and the heart. Mr. Pollock's question was one of importance, for it was only in the large aneurisms, as a rule, that a firm coagulum would be found to exist; in the smaller instances of the disease, it was rarely found. In Mr. Fergusson's first case, he (Mr. Curling) thought that a coagulum had been disturbed in the first instance, but it could scarcely be said that the case was one of cure. In the second case, the long interval that had occurred between the manipulation and any change in the tumour rendered it difficult to decide that the cure was the result of the proceeding, for after all it might have been spontaneous. He (Mr. Curling) should fear to disturb a sac so thin and fragile as was that of an aneurism in some instances. Serious results might occur, and this must not be lost sight of in considering the value of the operation.

Mr. HENRY LEE observed that the symptoms presented by Mr. Fergusson's patients immediately after the manipulations were so different from the immediate results of placing a ligature on an artery, that he was inclined to give a different explanation of their cause than that suggested by

the author. Instead of a portion of firm fibrine being dislodged, and blocking up a single vessel, he was of opinion that portions of softened fibrine were carried into the circulation, and obstructed several of the arteries in the neighbourhood, so that the effects were greater upon the system at large than when a simple ligature was applied. Having seen the second case detailed by Mr. Fergusson, he could only say, that to whatever cause the cure was due, it was an excellent one.

Dr. DICKSON inquired if Mr. Liston's life had not been prolonged by a plug of fibrine blocking up an aneurismal opening into the trachea?

Mr. MOORE thought that the old plan of treating subclavian aneurism by ligature had not been sufficiently carried out. He suggested the simultaneous application of two ligatures, one on the first part of the right subclavian, and the other at the distal extremity of the right carotid.

Mr. ERICHSEN said Mr. Liston had performed the operation mentioned by the last speaker in one instance. The patient died from secondary hæmorrhage. The profession were indebted to Mr. Fergusson for bringing forward his cases; but he thought with Mr. Lee that some other explanation than that advanced in the paper could be given of the phenomena presented. The symptoms were similar to those which resulted from the plugging up of arteries in arteritis by fluid fibrine. He thought some such change had occurred in Mr. Fergusson's cases, and was inclined to adopt the explanation of Mr. Lee.

Mr. CESAR HAWKINS inquired whether the proceeding adopted by Mr. Fergusson had had any real influence on the disease. In the first case, there might have been a displacement of fibrine; but it could not be said that a cure had been effected. In the second case, the long interval between the cure and the manipulation was against the supposition of any detached fibrine having acted as a plug, and cured the disease. Had a plug been detached, the effects would have been immediate. It was more likely that the cure after all was a spontaneous one. Spontaneous cures might take place after three or six months; but there was always evidence in these cases of the change at the time.

Mr. FERGUSSON, in reply, agreed with Mr. Curling regarding the state of small aneurisms, in which there was no firm coagulum; but there was a roughness from the deposit of lymph and fibrine even in these, and the detachment of even a small quantity was sufficient to effect the object sought by his operation. He admitted that the first case was not one of cure of the disease, for the tumour remained; and he had stated that death resulted from the pain consequent upon the pressure on the axillary plexus of nerves from giving way of the aneurism. But this was placing the worst construction upon it for himself, for Dr. Taylor had stated, that the patient had succumbed from fever at a time when all was going on well, as regarded the tumour, which was much diminished in size. He did not agree with the explanation given by Mr. Lee of the manner in

which the symptoms following the manipulation were to be accounted for. If that explanation were correct, all the vessels would remain like cords, being filled with coagulated blood; but this was not the case. The subsequent condition of the circulation, in the cases detailed, were also against the correctness of Mr. Lee's view. With respect to the objections raised by the President to his, Mr. Fergusson's, operation having had nothing to do with the cure, he might remark, that all the symptoms presented were such as would be likely to follow from the proceeding he had adopted, and tended to show that it had really been the cause of the changes which had taken place. It was scarcely fair to say that, in the second case, in consequence of the long time which elapsed between the manipulation and the cure, that the manipulation had had no influence on the result. We could not tell, even in cases of the spontaneous cure of aneurism, when the cure took place, which effected it took place: it might change weeks, or perhaps even a year before.

A Mirror

OF THE PRACTICE OF MEDICINE AND SURGERY IN THE HOSPITALS OF LONDON.

Nulla est alia pro certo noscendi via, nisi quam plurimas et morborum, et dissectionum historias, tam aliorum proprias, collectas habere et inter se comparare.—MORAGNI *De Sed. et Caus. Morb.* lib. 14. Proœmium.

ST. MARY'S HOSPITAL.

Lumbar Abscess of the Right Lower Dorsum, the Size of an Orange, in a Female aged Twenty-five, cured by Iodine Injections.

(Under the care of Mr. COULSON.)

THE diagnosis of those chronic abscesses which form in the neighbourhood of the vertebral column is always a matter of difficulty,—during the early stage at least. When deviation of the spine, from destruction of the intervertebral bodies or cartilages, has once occurred, the nature of the disease is clear; but doubt and uncertainty exist so long as the only symptom which we have to guide us is the presence of an abscess in the neighbourhood of the spine, preceded or not, as the case may be, by pain over some part of the vertebræ. If the formation of matter has been preceded by fixed pain over a particular part of the spinal column, we have just reason for concluding that the abscess is connected with diseased bone; but what is to be said of those cases in which no such pain has existed, or where it has been of a very insignificant and fugitive kind; where no incurvation of the spine can be discovered; where no paralysis exists; where the probe cannot reach diseased bone; where, in a word, the only prominent symptom is the slow formation of matter in one of those situations where abscesses from diseased vertebræ usually present themselves?

Little aid is derived from the usual method of pressing the matter from the exterior and observing towards what point it may be pushed back, because all cold abscesses of this kind have a tendency to point at some distance from the spot at which the pus was originally formed.

In all cases of the kind now alluded to, the surgeon should remain in prudent doubt, and not hastily express opinions the correctness of which may be disproved by the results of the case. This is the more necessary, as it seems probable that irritation or slight lesions of the vertebral column may be followed by the formation of abscess, long before any actual caries or ulceration of the intervertebral substance has taken place. Not long ago, Mr. Coulson had a young man under his care in the hospital affected with lumbar abscesses, which occupied nearly the same situation as in the case we are about to relate; the other symptoms of spinal disease were less marked. There was no weakness of the lower extremities, no constitutional disturbance, and the patient appeared to be perfectly well during the whole time of his stay in the hospital; yet the appearance of the wound through which the matter had been discharged was suspicious; it presented many of those characters which generally indicate connexion with diseased bone; no disease, however, could be detected on examination. The patient was discharged, nearly well, a small fistulous opening being all that remained.

These two cases of Mr. Coulson's are worthy of notice, as illustrating some of the peculiarities which the surgeon is likely to meet with in practice, and showing that the rules laid down in books require to be verified by attentive observations of numerous cases at all periods of the disease, and especially at their termination.

The results obtained in the two cases alluded to must be a matter of much interest to the pathologist and the surgeon. Even laying aside the question how far the abscesses may have been connected or not with disease of the vertebræ, the palliative treatment was certainly beneficial. When large abscesses of this kind are opened, the inner surface of the cavity often assumes a dangerous degree of unhealthy inflammation, the contents of the abscess become putrid, or, at all events, undergo a peculiar kind of decomposition, which has a most unfavourable influence on the general health, exciting hectic fever of the worst kind, &c. In other cases, the walls of the abscess continue to secrete pus, and no tendency whatever is manifested towards contraction or a reparative process. Iodine injections influence the condition of the surface of the abscess in a very favourable manner, though they may have no effect on the original cause of the disease; but, as in the cases now alluded to, no certainty exists that the vertebræ are diseased, it seems rational that some attempt may be made to modify the cavity of the abscess; and the results obtained by Mr. Coulson, in the following case, show that this may sometimes be done with success.

Elizabeth L—, aged twenty-five, a house-

maid by occupation, was admitted on the 16th of January, 1856. The patient is pale: her appearance is rather unhealthy, and the expression of her countenance is somewhat anxious. She states that the members of her family have always enjoyed good health, and that none of them have laboured under consumption as far as she is aware. Previous to her present disease she had always enjoyed good health, and had not been liable to cough or any other affection of the chest.

The following history of the case was gathered from her: About three months ago, she experienced two or three attacks of rigor, which succeeded pretty closely each other. At the same time, she had some pain between the shoulders, together with a feeling of nausea. Since then, she has been somewhat lame in the right lower extremity. The pain between the shoulders has continued with a few intermissions, and her general health has declined considerably; the appetite has failed; and she has lost flesh rapidly. Nocturnal perspirations exist, though not to any great extent. The above symptoms, varying from time to time in intensity, have occurred up to the period of her admission into hospital. Seven days ago the patient became aware of the presence of a swelling at the lower part of the dorsal region on the right side, at a short distance from the spine. Its appearance was not attended by any particular aggravation of the pain, which had hitherto been felt in that neighbourhood, but the swelling gradually increased in size.

On examining the patient, who appeared weak and depressed, a soft fluctuating tumour, evidently containing matter, was discovered; it was about the size of a fist. No deviation of the spine was discoverable, nor tenderness on pressure over any of the spinous processes. The patient still continued lame. The abscess was opened at once, the incision being made just over the eleventh rib on the right side, and about two inches from the median line. Nearly sixteen ounces of matter were evacuated. A poultice was applied.

Jan. 21st.—The patient feels very weak and low; pulse very small, 110; she has slept a little better since the abscess was opened. To take the cinchona mixture.

24th.—The amount of discharge from the wound is not very great; the pain is less; appetite improved; the patient, however, is too weak to get out of bed.

26th.—The wound was carefully explored with the probe, but no exposed bone could be detected. Mr. Coulson ordered that the iodine injection (a drachm of the compound tincture to seven drachms of water) should be thrown into the cavity of the abscess every morning.

Feb. 20th.—For the last week the discharge from the abscess has considerably lessened; the use of the iodine injection occasions only a trifling sense of uneasiness; the patient does not complain of any pain, and is able to stand without support; the pulse is weak and quick; the countenance is pale; but the appetite is pretty good,

and the night sweats have ceased. There is a little cough.

26th.—For the last few days the quantity of matter discharged has rapidly diminished, and the abscess is now healed. She was ordered a mixture containing sulphate of iron and quinine, twice a day.

March 6th.—The patient now lies dressed on her bed, and says that she feels very much better; she appears to have gained flesh considerably during the last few days, and does not experience pain anywhere; her appetite is good, and she enjoys a refreshing sleep; the tongue is quite clean; no cough now; pulse stronger. On examining the spine again, Mr. Coulson thought that he perceived some traces of incurvation about the middle of the dorsal vertebræ; but if any existed, it was so extremely slight that no positive prediction could be made with reference to future mischief in that locality.

UNIVERSITY COLLEGE HOSPITAL.

Use of the Ecraseur of Chassaignac in a Case of Hæmorrhoids, partly Internal and partly External.

(Under the care of Mr. ERICHSEN.)

On the 22nd of October we saw Mr. Erichsen remove some piles from a man, under chloroform, which were partly internal, by means of the ecraseur of Chassaignac. The piles were elevated with a pair of hooked forceps and the chain applied around the tumour, and in the course of five minutes and a quarter the mass was completely cut off without being followed by the slightest bleeding whatsoever. This instrument, as our readers are aware, was invented by Chassaignac, and is at the present moment very much in vogue amongst the Parisian surgeons for the removal of vascular tumours, cancerous growths, hæmorrhoids,—in fact, prominent tumours of almost every kind. Whether it is ever likely to become much employed in this country is for the present a matter of uncertainty; it is, however, undergoing a fair trial in our different hospitals, as suitable cases present themselves. The ecraseur consists of a handle and steel canula, within which are grooves for the passage of a jointed chain, like a chain-saw, but without any teeth, or perhaps more like the chain used in watches, the edge being blunted but not serrated. From the extremity of the canula projects a loop, as long as may be required, which is passed around the tumour and gradually tightened, the handle being moved once in fifteen seconds, when a little click is heard and the chain tightened by the drawing into the groove of one of the links. This process continues till all the links are drawn into the canula and the tumour is cut off. This slow method of producing strangulation and division of the growth entirely prevents any hæmorrhage. A contused wound is produced, and the orifices of the vessels are thus closed.

There is another instrument of the same kind, invented by Luer, of Paris, which differs from

Chassaignac's in its possessing a slow, continuous movement. By a cautious rotation of the handle the chain is slowly drawn into the canula. Both are equally good; Chassaignac's has the advantage of being cheaper.

It was used with success by Mr. Stanley, at St. Bartholomew's, in July last, who removed a singular-looking horny growth, a warty exudation from an epithelial chimney-sweeper's cancer of the scrotum. This was the first trial of the ecraseur in the London hospitals. Mr. Stanley first isolated the part of the scrotum to be removed before passing the loop of the instrument around it. Mr. Lawrence, some days after, removed a very large cellular tumour, weighing nearly a pound and a half, and in size equal to a small child's head, from one side of the generative organs of a young woman aged thirty. Seven minutes sufficed to completely detach it; it was followed by no bleeding, no ligatures, and the parts were brought together by sutures. A third instance of its use at the same hospital occurred in September, by Mr. Paget, who removed a vascular growth in connexion with the clitoris and labium, so commonly met with in females, attended with the like success and the same results as in the other two.

The instrument is to be had at any of the London makers, and clinical remarks have been made upon its application in certain cases, and the advantages it possesses. There is no hæmorrhage, no ligatures are necessary, there is no danger of phlebitis or of irritative fever, and, above all, it supersedes the use of the knife. Still, as we said before, it would be premature to decide upon its merits from a limited experience. Every now and then some surgical novelty arises, is tried for a short time, and then passes into oblivion. Whether this will be the fate of the ecraseur remains to be seen. It was observed by Mr. Paget, that this instrument had removed the thigh of a large dog, under chloroform, without hæmorrhage, and without any apparent suffering. Mr. Erichsen referred to an instrument invented by Mr. Luke fifteen or sixteen years ago, somewhat upon the same principle, for dividing fistula in ano, by means of a wire and a key; but as anaesthesia was not then employed, and the operation was therefore associated with much pain, it may have been a reason for its not being generally employed.

LONDON HOSPITAL.

Four Cases of Pneumonia, the first affecting both Lungs, the third in connexion with Rheumatic Gout, and the last engaging both Lungs and Pleura. Recovery in the three first, the last proving rapidly fatal.

(Under the care of Dr. SEPTIMUS GIBBON.)

We record some examples of inflammation of the lungs, all of them progressing towards cure (except the last one) upon the usual recognised principles of treatment—viz. bleeding in the first

stage, or that of engorgement, followed by the administration of calomel and tartar emetic, and continuing these drugs with variations until their desired effects are produced. In the third case, opium and colchicum were conjoined with the foregoing, from the presence of unmistakable symptoms of gout, as denoted, amongst others, by a chalk-stone on the ear. Now we have nothing especial to offer in these cases; our desire is to present illustrations, as opportunities may permit, of the different successful plans of treatment of this affection in our metropolitan hospitals. In Dr. Watson's well-known work on "The Practice of Physic," will be found recommended, in a few words, venesection in the first stage, as early as possible, in a full stream, and continued until a sensible impression is made upon the system; this may be repeated or not, according to circumstances. Tartar emetic is then advised for this stage of the inflammation, and when it has reached its second, that of solidification, mercury is to be given. Undoubtedly modifications are often necessary in the London form of the disease, and will account in a great measure for the difference in treatment by many of our hospital physicians, some discarding bleeding and lowering remedies altogether, whilst others depend upon what we may call the sustaining plan, of which we shall have occasion to speak at a future period.

CASE 1.—*Double Pneumonia treated by Venesection, Calomel, and Tartar Emetic; Recovery.*—Ambrose B—, aged seventeen, admitted April 15th, 1856. The patient is a dark-complexioned lad, with a deep flush on either cheek, and marked lividity of the lips. He is propped up in bed, breathing 60 times a minute; skin hot and dry; pulse 130, full and bounding, though somewhat irregular in its beats; tongue covered with a brownish fur, which is dry down the centre; abdomen free from tenderness; bowels open since yesterday. Slept a little last night, but was uneasy on account of the dyspnoea. No pain or swelling of his joints. There is a soft systolic murmur most audible at the apex of the heart; fine small crepitation accompanies the respiratory murmur as heard throughout both lungs.

History.—This patient was admitted into the hospital for fractured leg last autumn. Whilst there he had an attack of rheumatic fever complicated with cardiac affection, for which he was cupped. A week before Christmas he was discharged from hospital. He has since had palpitation and dyspnoea whenever he exerted himself much at his employment as a cabinet-maker. About a fortnight ago he for a short time experienced a sharp pain in the region of the heart; this quickly passed away. He continued his employment up to the day before admission, when, after exposure, he had rigors, followed by pain in the chest, and great dyspnoea. A mustard poultice was applied to his chest, and an emetic was given to him.

On admission, the resident medical officer applied a large blister to the right side. Ordered venesection to ten ounces at once; and two grains

of calomel and one-eighth of a grain of tartar emetic every three hours. To have the blistered surface dressed with mercurial ointment.

April 16th.—A quarter of an hour after the venesection the respirations were reduced to 50 per minute; the pulse was 114, of smaller volume, firmer, and free from any jerk.

17th.—The gums have become affected by the mercury. To omit the pills.

18th.—Sleeps well; cough not so troublesome; no expectoration; skin hot and moist; pulse 96, moderate volume and compressible; tongue clean and moist; the bowels, after having been much relaxed, are quiet to-day; respiration 25 per minute; slight, if any, lividity of lips; loud harsh systolic murmur, most audible at the apex. The respiration posteriorly is free except on deep inspiration, when rhonchus is heard in the lower part of the left lung, and rhonchus, together with mixed crepitation, in the lower part of the right lung. Ordered a saline mixture with squills, pargoric, and spirits of nitric ether every four hours; continue milk diet with a light pudding. Under the use of the above mixture, the patient quickly lost his bronchial affection, and was discharged from the hospital May 2nd, 1856.

CASE 2.—*Pneumonia; Consolidation of Right Lung; treated by Venesection, Calomel, and Tartar Emetic; Recovery.*—A short, dark-complexioned servant-girl, Ann D—, was received into the hospital April 29th, 1856. A deep flush on either cheek; skin hot and pungent; pulse 120, small and compressible; lips dry, with a few sordes; tongue thinly furred with a dry, red streak down the centre; abdomen full and soft; respiration, 30 per minute. Auscultation: Beneath the left clavicle is large crepitation and rhonchus; beneath the right there is coarse tubular breathing posteriorly; in the left infra-scapular region there is free vesicular murmur, with occasional large crepitation; throughout the right side there is bronchial breathing, bronchophony, and scanty, large crepitation. Complains of frequent cough and dyspnoea; expectoration is transparent, viscid, rust-colored, mixed with small air-bubbles. She passed a restless night, and was at times delirious. Has never menstruated.

History.—Was in hospital a year ago for a slight attack of bronchitis. Six months since she had a cough and shortness of breath, together with pains in her loins. Two months ago she had swelled feet. Three days ago, after exposure to cold and wet, was suddenly seized with rigors and urgent dyspnoea, so that she was obliged at once to be conveyed from her "place" in a cab. She has since, under medical advice, had mustard poultices on the chest, and taken purgative medicine. Ordered, bleeding to twelve ounces at once, and two grains of calomel, one-sixth of a grain of powdered opium, and one-eighth of a grain of tartar emetic, every three hours; a drachm of mercurial ointment to be rubbed into the skin. Syncope was induced by the abstraction of the blood; the pulse dropped to 114, becoming fuller and softer, and the respirations were

less frequent. The blood congealed into a small and firm clot, which was buffed and cupped.

May 7th.—The patient is much easier; respirations 30 per minute. The gums became affected on the 2nd instant, and she has only taken one pill a day since. Skin cool; pulse 90, compressible; tongue moist, thinly furred; gums very vascular; great fœtor of breath; bowels regular. Auscultation: In the upper two-thirds of the right lung there is mixed crepitation; in the lower third bronchial breathing remains. There is considerable dulness on percussion on the right side of thorax; the left lung is free. Ordered, a grain of calomel and one-eighth of a grain of powdered opium three times a day, and a compound alum gargle with brandy (half an ounce to the pint).

14th.—Sleeps well; does not complain of cough; expectoration is a scanty dark mucus; countenance natural; pulse 90, small and soft; tongue moist, thinly furred, and tremulous; gums slightly vascular; respirations 20 per minute. Auscultation: Posteriorly throughout the upper two-thirds of the right lung, free vesicular murmur; in the lower third, medium-sized crepitation on deep inspiration, with marked dulness on percussion; vesicular murmur under both clavicles.

24th.—The patient expresses herself as feeling quite well; no cough and no expectoration. Auscultation: Free vesicular breathing is heard throughout the right lung, except at its base, where there is coarse breathing and mixed crepitation, with dulness on percussion. Dr. Gibbon gives it as his opinion, founded on the history and progress of the case, that the lesion at the lower part of the right lung was the effect of the previous attacks, accompanied as they were with pains in the loins, &c., in a girl whose mammae were fully developed, in some measure depended on absence of menstruation. Dr. Gibbon stated that it would now be his object to establish that function, and with this view prescribed syrup of the iodide of iron and infusion of calumba three times a day, and ten grains of aloes pill, with myrrh, when necessary.

CASE 3.—*Pneumonia in connexion with Rheumatic Gout; Chalk-stone on the right Ear; Treatment by Calomel, Tartar Emetic, Opium, and Colchicum; Sloughing over Sacrum; Recovery.*—John P., aged sixty, admitted on the 19th of March, 1856; a healthy-looking man; skin and scleroticæ have a yellowish tinge; tongue moist, and thinly furred; no appetite; considerable thirst; sleeps badly, owing to pain in the chest; slight dyspnoea; complains of a sharp, cutting pain at the epigastrium on deep inspiration. Auscultation. In the right scapular region is coarse breathing; in the right infra-scapular region is marked bronchial breathing and bronchophony. There is also complete dulness on percussion in this region. Cardiac sounds clear. On the upper part of the right ear is a chalk-stone, the size of a horse-bean.

History.—A pilot; fourteen days ago, after exposure, had rigors, succeeded by cough and dysp-

noea, followed by pain, swelling, and redness of all his smaller joints.

Ordered, saline mixture, with one-eighth of a grain of tartar emetic every three hours. Two grains of calomel now and to-night.

March 22nd.—Pulse 90, moderate and soft; no improvement in the auscultatory signs; tongue moist, and thinly furred; pain and swelling has affected the joints of the right hand. Ordered, powdered opium, one eighth of a grain, calomel, two grains, three times a day. The saline mixture, with tartar emetic, to be repeated, with twenty minims of tincture of colchicum, three times a day.

April 2nd.—Three days after the last note was taken, it was noticed that there was mixed crepitation in the lower part of the right lung; consequently, the calomel, which had not affected the gums, was suspended. Auscultation now detected free vesicular breathing throughout the right lung; nor is there any dulness on percussion; pulse 72, feeble and soft; tongue nearly clean. Ordered, quinine mixture three times a day; the integuments over the sacrum to be washed with a strong solution of nitrate of silver, (fifteen grains to the ounce.)

12th.—A large slough has separated from over the sacrum, leaving a deep, though healthy, granulating sore.

May 24th.—He has progressed steadily, though slowly, on account of bed-sore, which has not quite healed at the present time.

CASE 4.—*Double Pleuro-pneumonia, after immersion, rapidly Fatal; Autopsy.*—Mary J., aged twenty, a domestic servant, was brought to the hospital late on the evening of March 18th, 1856, in consequence of having accidentally fallen into the Thames. It was stated that she had been immersed for about ten minutes, and that she was insensible when taken out. At the time of admission, reaction was just commencing. In the course of the evening, she complained of a little pain about the shoulders. The resident medical officer ordered her the effervescing ammonia mixture every four hours.

March 20th.—Dr. Gibbon first saw her. Pulse 108, but soft; tongue furred, but moist. Bowels freely moved by a black draught taken yesterday morning. Breathing is rather hurried. Has vomited, and complains of pain in the left shoulder-joint. Auscultation in the lower part of the left lung is medium-sized crepitation, and slight dulness on percussion throughout; in right lung is free vesicular murmur. She states that she was in excellent health before she fell into the water. Ordered, a large blister to the left side. Half a drachm of nitrous ether; twenty minims each of the tincture of hyoscyamus and antimony wine; and an ounce of saline mixture every four hours.

On the following day it was noted by the clinical clerk that the breathing had become much more hurried; the pulse was 144, of a running character; face congested; tongue covered with a thick, white, moist fur; a well-marked friction sound, together with bronchophony and bronchial

breathing were heard throughout the left lung. Patient died at two A.M. on the following day.

Post-mortem examination, ten hours afterwards.

—Rigidity well-marked. The lungs did not collapse on removal of the sternum, but had a firm solid feel, and appeared of a uniform deep-red colour. The left pleura was coated with a soft, recent layer of lymph, and attached to the right were a few bands of old adhesions. No crepitation could be detected in the left lung, except at its edges. Its section had a smooth, deep-red appearance, except in the middle of the lower lobe, which was of a bright colour, and readily broke down under pressure. From the former surface of section exuded a red fluid mixed with air-bubbles. The upper lobe of the right lung was in a state of hepatization, as was also the upper half of the lower lobe. The remaining half was in the first stage of inflammation. The pericardial sac contained about two ounces of limpid serum, but its lining membrane appeared healthy. Heart healthy and contracted, all its chambers containing more or less of a yellow firm fibrine. The other organs, except the brain, were examined and found healthy.

Remarks.—This case is important and interesting, as showing the rapidity with which pneumonia may run through all its stages to a fatal termination, unless treatment is had recourse to, adequate to arrest its progress. This girl, before the accident, which occurred three days and a half before death, appears to have been in excellent health; and even at the time when Dr. Gibbon first saw her (in the middle of the day, March 20th), the pneumonia appeared only just to have commenced. As it was of an asthenic character, and accompanied with pain in the left shoulder-joint, it was probably of a rheumatic origin.

Dislocation of the Astragalus, with Fracture; Unsuccessful Attempts at Reduction; Sloughing; Removal of the Displaced Bone.

(Under the care of Mr. ADAMS.)

Mr. Adams, in a clinical lecture on this case, remarked that he was called by Mr. Cook, of the Minories, to see a gentleman, who had dislocated his ankle in jumping from the side of a ship in dock on to the wharf, a distance of about fourteen feet. The patient said that he had pitched on his left foot, which had bent under him, and he found that he had sustained considerable injury to his ankle. Mr. Cook made every attempt he could devise to reduce the ankle, but without success. When Mr. Adams first saw the patient the following was his condition:—There was great deformity of the left ankle, but the appearances were not exactly those of a dislocation of the ankle inwards or outwards; thus the foot was thrust *outward* from the tibia, but not sensibly everted or inverted. There was a distinct hard tumour on the upper and outer part of the instep, and a sharp, rough edge of bone could be clearly felt under and almost pressing through the skin. The outer malleolus could be felt, as it

was supposed, fractured behind this swelling. The relation between the tibia and astragalus was certainly not natural; but, owing to the swelling of the parts, their mutual relation did not appear materially altered. The finger could be forcibly pushed under the inner malleolus, showing that the internal lateral ligament had been ruptured. Mr. Adams was disposed to believe that Mr. Cook had succeeded in almost reducing a dislocation of the ankle outwards, but that, owing to some fracture, the complete replacement of the bones had not been accomplished. He therefore made further attempts to reduce what he conceived to be the fractured astragalus, by first flexing the knee, next fixing the tibia and fibula, then extending the foot, and at the same time trying to push the bone towards its natural position; but he could produce no impression on the bone, either by the aid of the round towel, or by forcibly separating the anterior from the posterior part of the foot, and then endeavouring to force the bone into position.

The patient was then recommended to come to the hospital for a consultation, and, by the advice of Mr. Luke, other attempts at reduction were made under chloroform, but without success. A splint with a foot-piece was placed on the inside, and a bandage was lightly applied. The part was ordered to be constantly fomented. Considerable inflammation set in, and the skin sloughed over the projecting edge of bone. In the course of ten days Mr. Adams removed the bone, without much difficulty, by the aid of strong bone forceps, its ligamentous connexions being almost all ruptured.

The case proved to be one of dislocation, with fracture of the astragalus, the head and a large portion of the under part of the astragalus having been completely broken off from the upper part and articular surface of the bone, leaving the trochlea, with the articular surfaces for the outer and inner malleoli, entire; there was also a starred fracture of the under and posterior articular surface; the bone was also rotated on its axis, so that the upper surface was thrown outwards, and the upper edge of the surface, which naturally articulates with the inner malleolus, was the part protruding nearly through the skin. There has been a good deal of inflammation and suppuration of the foot and leg, with much constitutional irritation, but, as the patient is a young man, there are well-founded hopes of his ultimate recovery.

Mr. Adams made some remarks on the subject of dislocations of the astragalus, simple and compound; and after reviewing the account of various cases on record of this accident, gave it as his opinion, that in most cases of simple, irreducible dislocation of the astragalus, it is better to leave the cases to the natural efforts, and to remove the bone when sloughing has occurred over it, rather than to expedite the business by incisions over the displaced bone, before the skin has given way. He referred to many cases which had been brought into the hospital of almost every variety of dislocated ankle and astragalus.

He, at the conclusion of his lecture, strongly advised the students to make a record of every case of accident occurring during their attendance at the London Hospital, so advantageously situated for this important branch of surgery. He endeavoured to impress this on their minds as essentially desirable to those who were about to practise in country districts, where no second opinion can be obtained, and where, therefore, it is essential for them to act on the spur of the moment in cases of dislocation or fracture.

ROYAL FREE HOSPITAL.

Cases of Acute Rheumatism successfully treated with Bicarbonate of Potash.

(Under the care of Dr. O'CONNOR.)

A FEW months back we had an opportunity of observing the good effects of the treatment of acute rheumatism with bicarbonate of potash, as recommended by Dr. Garrod, in four cases admitted into this hospital, under Dr. O'Connor's care. One case was that of a young man, an agricultural labourer, from Hendon, aged eighteen years, but who had never before been attacked with rheumatism. After the administration of a brisk purgative, he was ordered the bicarbonate of potash, in half-drachm doses, every four hours, in water, which was continued until the urine became alkaline, when there was a total cessation of all the symptoms. The remedy was continued a few days longer, with the occasional use of purgative medicine, and the patient was discharged on the seventh day after his admission.

In the two next cases the same plan of treatment was pursued with equal benefit, and the patients were discharged in about twelve days after admission.

The fourth case was that of a tailor from the neighbourhood of Ratcliffe-highway, who had been suffering from acute rheumatism for some time before his admission. The disease was general over all his extremities, and nearly all the muscles of his body were likewise attacked. After the action of purgative medicine, he was ordered the bicarbonate of potash, in the same doses as those already given, and after the lapse of about four days the patient was nearly free from pain. He slept better at night, and continued to improve for some days. His right knee, which had been very painful and bent before his admission, now became very troublesome. He was ordered Dover's powder at night, with some relief, the alkali being still continued. The pain in the knee was not so much relieved; the joint was directed to be covered with sulphur, and then bandaged tightly in flannel. In less than twelve hours relief was afforded by this plan of treatment, and in a few days the painful condition of the joint entirely ceased, the limb became straight, and the patient was discharged cured within three weeks. Dr. O'Connor states that he has for many years been in the habit of having recourse to the application of sulphur and flannel bandaging of the

joints, in cases of rheumatic affections assuming a chronic form, with great benefit.

ST. GEORGE'S HOSPITAL.

Exostosis of the Femur the size of a Fist, producing Synovial Inflammation of the Knee-joint; Removal; Death from Pyæmia on the twenty-third Day; Autopsy.

(Under the care of Mr. POLLOCK.)

No part of the skeleton is exempt from the occasional presence of exostotic, or true bony growths; they are, however, more commonly met with on some bones than on others, and it is not unusual to find a large number of bones affected with them at the same time, as if depending upon an exostotic diathesis. Specimens of this last form are now and then seen in our museums. Of all the bones of the body, perhaps, the long bones are their most favourite seat, the femur especially. Of the two examples we record to-day, one is of the femur and the other is of the humerus. In December of last year, we saw Mr. Lawrence, at St. Bartholomew's Hospital, remove a small bony tumour growing from the inner side of the femur, a little above the condyle, of a healthy young man, aged twenty-one; there was a small bursa over it. On the 4th of November we witnessed the removal of another bony tumour by Mr. Hilton, at Guy's Hospital, from the upper and inner side of the left tibia of a young woman. Thus we have seen four recent examples in which the long bones were implicated.

As to the origin of most of these tumours, they are generally attributable to external violence, as a blow or a contusion, although there can be no doubt they may arise spontaneously from a gouty, a syphilitic, or a scrofulous diathesis, whether in the young or the old. As a rule, bony tumours are more frequent in the young. Their structure is one of the most interesting features to the pathologist, presenting all the varieties of the natural bone, upon which they grow, their interior being composed of a soft, spongy texture, surrounded by a layer of solid, compact matter. Very commonly they are cartilaginous on their surface; and, when this is the case, we believe the bony tumour is only in process of development, and would ultimately, if allowed to grow, attain a condition of solid bone. We have observed, that according to the age of the patient, so is this cartilaginous condition present or absent. For instance, it is rarely met with in old people, and very commonly seen in the young, although this fact is not noticed by any writer. So long as they are situated externally, on the surface of any bone, they merely prove an inconvenience, and are not dangerous to life, unless inflammation or degeneration of some kind should ensue. Far otherwise is it when they make their appearance inwardly—in the skull, for instance, producing epilepsy; or in either of the other great cavities. There is at this moment a patient in

the Westminster Hospital, under the care of Mr. Holthouse, who is dying "by inches" from the slow growth of a bony tumour within the pelvis, which exceeds in size anything we have ever seen, attaining such a prominence as to resemble ascites. But such instances are fortunately rare.

Charles W——, aged twenty-five years, was admitted on June 4th, 1856. The following was his history:—He had noticed for a considerable time a swelling on the lower part of the right thigh, which had been gradually but slowly increasing. He believed it to have been moveable at first, being no doubt deceived by the motion of the skin over it. It had been gradually but slowly increasing, and had during the few weeks preceding his admission affected the knee-joint, causing synovial inflammation, for which he had been treated as an out-patient. When admitted, there was found a swelling on the lower and outer part of the thigh bone, about as large as a man's fist, evidently horny and lobulated on the surface. It was distant about two inches and a half from the articular extremity of the bone. The man was in perfect health.

A week after the patient's admission (June 12th) it was cut down upon, and was found to consist of bone coated by a very thin shell of cartilage. The base was broad, and great force was required in removing it. The operation was followed by a great deal of fever, and in about ten days a large abscess presented, and was opened in the calf of the leg (June 30th); and a week after this was followed by a fresh collection of matter, in considerable quantity, and with very offensive odour on the inner side of the leg. He had several attacks of shivering on this day (the eighteenth after the operation). These were followed by the other symptoms of pyohæmia, profuse sweating, great prostration, rambling delirium, and symptoms of abscess on the dorsum of the left foot. He died on the 5th of July.

Autopsy.—The body was emaciated, and the right knee-joint much swollen and full of pus; the synovial membrane sloughy; several abscesses lead into this joint. The right pleural sac contained about an ounce and a half of thick purulent fluid at the anterior part in connexion with the surface of the lung, which was found very highly inflamed and hepatized, and contained a rather fetid abscess. The left lung and pleural sac were natural. The heart was very much softened, and its walls were thinned; the left ventricle being almost closed, the blood was very fluid. The spleen was very much softened. Other organs natural.

Exostosis of the Humerus in a Girl, of two year's Growth, with a Bursa over it containing Fluid; Successful Removal.

(Under the care of Mr. HENRY CHAS. JOHNSON.)

The patient was a healthy female, aged about eighteen years. Two years ago a lump began to grow below the right shoulder, which increased much in size during the last six months, and was

becoming painful, and caused her a good deal of inconvenience. The skin could be moved freely over it, accompanied with a crackling feel, and it was clearly seen to be an exostotic tumour, and the girl expressed a desire to have it removed.

Chloroform was given by Dr. Snow on the 21st of August, when Mr. Johnson made an incision about four inches long, as far backward as he could, and cut between the fibres of the deltoid muscle, exposed the growth, and with a pair of Liston's forceps removed it in five different portions. It was cartilaginous towards the surface, and osseous in contact with the shaft of the humerus. It was covered by a distinct bursa, containing fluid, which was the cause of the crackling sensation felt before the operation. The wound was filled up with lint, and the parts left to heal up by granulation, the most desirable proceeding in a case of this kind. Its base over the shaft of the bone was rendered quite smooth and even. The size of the tumour was that of a large plum.

Sept. 1st.—Suppuration became established a few days after removal of the tumour, which has now diminished; the wound has contracted, looks very healthy, and is covered with granulations. The general health is perfect.

After the continuation of suppuration for a few weeks, the wound became perfectly closed and healed up, permitting of the patient's discharge from the hospital cured.

REGIMENTAL FIELD HOSPITAL, CRIMEA.

Excision of the Elbow-Joint, in a Soldier of the 3rd Regiment, for a compound comminuted Fracture of the Bones of the Articulation, from a Shell; Recovery with a useful Arm.

(Under the care of Surgeon BURKE, 3rd Buffs.)

THE following case in military practice, will form an addendum to those of excision of the elbow, which have appeared in a previous number of this Journal. The operation was performed for an extensive wound, completely shattering the bones entering into the formation of the articulation. So far as is known, the results generally of resection in military practice, especially amongst the French surgeons are said to have been very successful, even more so than in civil practice.

Private Lewis Trigwell, 3rd Regt., about thirty-four years of age, of rather unhealthy appearance, was brought to the Regimental Field Hospital in August, 1855, having received a severe wound of the left upper extremity, from a shell, when on duty in the trenches.

On examination, there was found to be a compound comminuted fracture of the left elbow-joint, limited to the extremities of the bones entering into the formation of that articulation. It appeared to be a favourable case for endeavouring to save the limb by performing the operation of excision. In arriving at this conclusion, Mr. Burke had the benefit of the opinion of his friend

Dr. Gordon, the principal medical officer of the 2nd Division, who fully concurred with him in the propriety of the operation. The incisions were made (the patient being brought under the full influence of chloroform) in the usual mode, and the ends of the bones completely everted; these were then sawn across at a little distance from the extremities, sufficient to include all the comminuted fragments; two or three small arteries were tied, and the wound being brought together by means of sutures and adhesive plaster, the limb was placed in a semi-flexed position, resting on a pillow. Some constitutional disturbance ensued, which was followed by considerable swelling and tension of the arm, so much so that Mr. Burke deemed it necessary to remove one or two sutures. Very copious and exhausting suppuration succeeded. These unfavourable symptoms were combated by the ordinary remedial measures, while the vital powers were sustained by generous diet, &c.

In consequence of the 3rd Regt. changing its position to another part of the camp about this period, Mr. Burke was under the necessity of transferring this patient for further treatment to the General Field Hospital, when he ceased to be under his medical care. However, as he felt much interest in the case, he continued to keep himself acquainted with its progress; and although recovery was protracted and tedious, the man went on well. He was eventually invalided and sent to England.

Mr. Burke was disposed to attribute the super-vention of the unpleasant symptoms above mentioned to a constitutional diathesis ill adapted for the receipt of the shock of a severe wound, such as is frequently observed in soldiers after a certain term of military service. A brother of the patient, who is now serving in the same regiment, has lately informed Mr. Burke that he has received intelligence from his relative, who states that he is in the enjoyment of good health, and (as far as he can collect from his account) in the possession of a useful arm.

HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, BROMPTON.

The Application of the Sphygmoscope or Cardioscope in estimating the Pulsations and Movements of the Heart and distant Arteries in various parts of the Body, with reference to the Cardiac Sounds in cases of Disease and Health; together with a Description of the Instrument.

(Under the care of Dr. SCOTT ALISON.)

THE numerous cases of disease of the heart, which have come under the care of Dr. Scott Alison during the last eight months have afforded abundant means of applying, in the investigation of disease, the new sphygmoscope,* or cardioscope (contrived by that physician, and described in the "Proceedings of the Royal Society" for January). This instrument is constructed upon

the same principle as the sphygmometer, or pulse-measurer, invented by M. le Docteur Hérrison, an account of which was read some twenty years ago before the Academy of Sciences of Paris. Both instruments consist of a cup filled with fluid, covered at its large extremity with a moveable and flexible material, and communicating at its other extremity with a glass tube. The impulse of the pulse or of the heart drives in the flexible covering, and the fluid is forced up the tube. The new sphygmoscope is made large, to adapt it to the greater size of the heart's apex, and the glass tube is bent up at right angles, to secure the perpendicular position and the return of the fluid by gravitation when the impulse has ceased. When it is desired to view the movements of the sphygmoscope at the same time that the heart's sounds are being heard by the ear placed upon the stethoscope, a piece of india rubber tubing is placed between the cup and the glass tube, by which contrivance the glass tube may be moved to any point convenient for the eye. The small instrument employed to indicate the amount and the time of the impulse of the arteries may be likewise supplied with the india-rubber tubing. This addition to Dr. Hérrison's instrument is useful for enabling the observer to place different instruments upon distant arteries, and lay their respective glass tubes close together, and thus facilitate the correct observation of their respective movements. The tubing attached to the different instruments is of the same bore and of the same length.

Fat and very muscular persons impart little movement to the cardioscope; but thin persons, and those whose hearts are irritable or strongly impinge upon the ribs, are very suitable for observation. The heart in phthisical and wasted persons will frequently afford a movement of three or four inches. In some examples of organic disease of the heart, the ascent of the instrument amounts to four inches. Dr. Alison attaches comparatively little value to the instrument as a mere measurer of the extent of the heart's impulse, as M. Magendie did in respect to the invention of M. Hérrison; for the hand is a sufficiently good test of that movement. It is in affording delicate means of connecting the movements of the heart with its sounds, and of observing the relations of the beat of the heart and the arteries, and of different arteries in different parts of the body, that it is regarded as an instrument of some utility in the investigation of disease.

The relative duration of the systole and the diastole of the heart is shown by this instrument. For the most part, these movements appear to occupy the same time. The ascent of the fluid which indicates the systole is occasionally seen to be slow and deliberate, whilst the descent which represents the diastole is seen to be short and abrupt. In some examples the descent has been observed to consist rather of two successive dips, than of one uniform motion. When the interval between the beats of the heart is unequal, this is well shown by corresponding inequality in the rise

* *sphygmos*, pulsus cordis; *oscu*, video.

and fall. The rise after a long interval is great, after a short one is slight: the fall during a long interval is great, and during a short one is slight. The descent of the instrument continues during the whole time of the interval.

During the ascent of the sphygmoscope, the ear applied to the præcordial region hears the first sound of the heart, and at the commencement of the fall the second sound is heard. Thus we have further confirmatory evidence that the first sound of the heart is due to movements taking place during the systole, and that the second sound proceeds from a movement taking place at the commencement of the diastole. The first sound occupies the whole time of the ascent, the second sound occupies only the first part, perhaps the first half, of the *descent*.

When the healthy sounds are replaced by unhealthy, by means of this instrument and the stethoscope it can be ascertained with precision whether they be systolic or diastolic, or both. The systolic endocardial murmur is heard during the whole ascent of the instrument, the diastolic is heard during the descent. In this way, the question whether a murmur be systolic or diastolic—one of not infrequent difficulty to the young physician—is readily answered. It is worthy of notice, that while the healthy second sound occupies only *part* of the time of the descent of the instrument, the diastolic murmur is frequently heard during the *whole* descent. This protracted abnormal sound is due to the passage of the blood back into the heart through diseased valves—the cause of the sound—occurring during the whole diastole, while the cause of the healthy second sound—viz. the flapping back of the valves—is comparatively short and instantaneous, and occurs only at the first part of the heart's diastole.

Double murmurs are heard during both the ascent and the descent of the sphygmoscope. They always vary in tone. Exocardial sounds have their relations with the movements of the heart more satisfactorily made out by means of the sphygmoscope. The "to-and-fro" rubbing sound is heard during the systole and the diastole. One example of exocardial murmur has been confined to the systole, and another has been restricted to the diastole, as denoted by the instrument. The first sound was probably due to the impingement of the roughened heart on the roughened free pericardium; the second was probably due to tension of bands of adhesion, caused by the receding of the heart. In some examples of exocardial bruit, the sound somewhat resembles the endocardial murmur, and much difficulty has been experienced in connexion with them. In cases of such obscurity, it is pleasant and useful to obtain any further information or additional fact, and though at the present moment it may not serve to bring us to a fully satisfactory conclusion, it may do so at a future time, when we more thoroughly understand its value and indications. When we hear a bruit at the region of the heart different in character from what we ever before heard,

and such as has not been before described in medical writings, when its locale is somewhat abnormal, and when, in short, the matter is wrapped up in a cloud of obscurity, it is surely something to ascertain for certain that it is synchronous with the contraction of the heart, or synchronous with the recession of that organ from the ribs. In the midst of obscurity and doubt, one such important and undoubted fact may prove a luminous spot to guide our steps—a fixed though small point on which, for the moment, to rest with security. In nearly every example of cardiac bruit which has come under observation, the cardioscope has proved useful, either in declaring what could not be arrived at without it, or in pleasantly and assuringly confirming an opinion formed independently of it.

By means of the cardioscope and the smaller instrument placed upon the radial artery, it has been found that the heart sometimes beats more frequently than the radial artery. Some beats of the heart, though sufficiently strong to affect sensibly the cardioscope, are too weak to produce a pulse-wave at all, or one strong enough at the wrist either to be felt by the finger, or to manifest itself upon the small sphygmometer. It is generally believed that in many examples of intermittent pulse the heart may beat when the pulse fails to be felt, and that the pulse is not perceived, not because there is no beat or contraction of the heart, but because it is so weak as not to propagate a pulse-wave so far as the wrist. This was shown in a very interesting case of congenital cyanosis, in a young man in whom the pulse was very slow, being only 35 in the minute. The vitality of this person was little pronounced; the surface of the body was chilly to the touch, and even the tongue felt cold. The cardioscope placed over the heart was rapidly and irregularly moved, showing not less than 100 beats in the minute. This patient, whose case is full of interest, is under the care of Dr. Edward Smith.

In examples of transposed and displaced heart, which are not unfrequently observed at this hospital, whether dependent on the pressure of fluid in the pleuræ, or upon the presence of large cavities in the lungs, the absence of resistance on one side, and increased pressure on the other, from the compensatory increased expansion of the healthy lung, the chief manifestation of the sphygmoscope which has been observed is, a material increase of movement. No retardation of the blood-wave has been noted, but the size of the pulse-wave at the two wrists has differed in some cases. When the heart has been transposed to the right side of the sternum, with the apex beating near the right nipple, the left radial pulse has been found to be larger than the right. The difference has been very obvious, but it has not been found in all cases. The pulse-waves on either side were synchronous. The synchronosity of the radial pulses, and the larger size of the left pulse, were well shown in the case of a girl with the heart transposed to the right, under Dr. Cursham.

In disease the same rule holds as in health in

respect to the retardation of the pulse. In health, the small instrument placed upon an artery never rises until the ascent of the cardioscope placed over the heart has been completed; and in disease, no other result has yet been obtained. Whether the pulse be 50 or 100 in a minute, regular or irregular, or whether the arteries be sound or greatly ossified, this is the only and invariable observation. The rise of the small arterial instrument does not take place at the same time as the rise in the cardioscope, but during its *fall*. Thus the rise of an instrument placed upon the heart alternates with the rise of an instrument placed upon an artery.

It is in disease likewise as in health that no appreciable interval is found between the beat of an artery near the heart and one distant from it, so far, at least, as is indicated by these instruments; for one placed upon the carotid and another on the dorsal artery of the foot, and each having the india-rubber tube of the same bore and extent, and having their glass tubes placed together, display the contained fluid in motion at the same or apparently the same instant. Thus it happens that the blood-wave travels to the extremities, once it has passed the thorax, without any appreciable loss of time, and that its retardation takes place between the heart and the first arteries upon which we can place the instrument. A slight interval has been suspected in examples of slow pulse with empty arteries. Since it appears that the pulse is not synchronous with the ventricular systole or with the first sound of the heart, the direction given by some writers to regard murmurs occurring with the pulse as systolic is obviously fallacious.

The cardioscope is almost invariably much affected in cases of hypertrophy and of hypertrophy combined with dilatation. But in some cases of hypertrophy in young subjects, the movement of the fluid has been less than might have been expected, from the heart not restricting its force to the soft parts at the intercostal spaces, but so forcibly acting on the ribs as to raise them, and carry the entire instrument, solid cup and all, with them, and thus failing to confine its blow to the moveable cover.

The arterial instrument is moved to a very remarkable extent in cases of aortic regurgitation, when placed upon the subclavian or carotid arteries; and this proceeds from the great variation in the amount of their distension,—now emptying at both extremities, and now filling with an augmented discharge from the ventricle. A great movement likewise takes place when the artery is ossified or has lost its elasticity; for under the ventricular discharge, the vessel is not merely filled, but is lifted.

Aneurisms impart very great movement to the instrument. An ostler (Charles T—), aged sixty, whose life has been, to use his own expression, "only hard work," whose arteries are solid with cretaceous deposit, has an aneurism of the left subclavian artery, about the size of a horse-bean. This little pulsating tumour raises the instrument four inches. A double aortic murmur in

this case is very interestingly timed by means of the instrument, aided by the ear. It is believed by Dr. Alison that the instrument may be useful in the discovery of obscure internal aneurisms, but he has not yet had an opportunity of testing it. He recommends the instrument to obstetricians for trial, as a means of ascertaining, in cases of arrested delivery, whether the fœtus be dead or alive. The instrument to be placed upon the fontanelle. It may be likewise made a stethometer, single or differential, to indicate the relative duration of inspiration and expiration.

Dr. Alison was not aware of the construction of the sphygmometer of Dr. Hérrison when he contrived the sphygmoscope. The sphygmometer was restricted in its employment by Dr. Hérrison to the pulse, but it will be seen from the above notice that the sphygmoscope has wider applications.

Reviews and Notices of Books.

The Obstetric Memoirs and Contributions of JAMES Y. SIMPSON, M.D., F.R.S.E. Edited by W. O. PRIESTLEY, M.D., and HORATIO R. STORER, M.D. Vol. II. Edinburgh: Adam and Charles Black. 1856.

THE appearance of the second volume of Professor Simpson's Collected Memoirs will be welcomed by all those—and they are many—who look up to him as one of the foremost amongst those whose names will be hereafter referred to as marking the obstetric era of the present age.

In our notice of the first volume we had little more to do than to call attention to the convenient form in which many admirable memoirs, scattered abroad in numerous publications, and mostly familiar to us all, had been submitted to the obstetric world. Our duty, in reference to the present volume, is somewhat different. It contains something more than already published memoirs. Several contributions, we are informed in the Preface, now appear for the first time. Amongst the more important of these are: "Pathological Researches on Puerperal Arterial Obstruction and Inflammation," "On the Rudimentary Reproduction of Extremities after their Spontaneous Amputation," "On the Practical Application of Chloroform as a Topical Anæsthetic to Mucous and Cutaneous Surfaces," and "On Carbonic Acid Gas as a Local Anæsthetic in Uterine Disease."

But the new matter is not confined to these additional memoirs. In the reproduction of several previously-published memoirs, considerable additions and modifications have been introduced; so important, indeed, that some would not be recognised in their new form. They may be said to be regenerated. Although ever ready to receive with gratitude any addition to our knowledge, and glad to observe a master in his department of science prompt to labour in perfecting his own writings, by incorporating the later discoveries of others, we cannot pass by the alterations of the latter class without some words of remark.

It is universally recognised, that the observance of historical and chronological accuracy is a first

duty of the scientific writer. It is a law founded on justice to individual labourers, and necessary for the true understanding and appreciation of scientific discovery and progress, to preserve, with scrupulous care, the landmarks of dates and persons. This law has not always been observed by Professor Simpson. He has occasionally thrown down those landmarks which have served to divide his scientific domain from that of others, with the effect—we hope, and are willing to believe, unconsciously—of imitating the art of the landscape gardener, who, by the skilful interposition of a mound or a clump of trees in one place, and the opening of a vista in another, conceals the real boundaries of his territory, and cheats the eye of the spectator into the belief that all it beholds in each direction is part of the property of his patron.

We assume that one motive leading to the publication of these volumes was an honourable and justifiable desire to collect into one great work the scattered materials upon which the Professor's fame has been raised, so that not only may living physicians be instructed, but that future physicians may recognise the basis of that fame which, in our day, fills so large a measure of professional and public estimation. Had the object been simply present instruction it is obvious that a far more compendious, condensed, and methodical arrangement might have been pursued with advantage. Many memoirs might have been conveniently fused together; not a few of which, being little more than repetitions of others, might have been usefully omitted; all might have been curtailed by greater compactness of style and the elimination of argumentative and polemical passages, originally called for, in order to prepare the way for new doctrines, or springing out of the provocations of controversy. We do not find fault either with the motive that led to this compilation, or with the form that has been adopted. There is nothing more useful or interesting than the exhibition of the progress of an active and original mind, step by step, in the path of improvement and discovery. It is scarcely less instructive, and often more fascinating, to trace the processes by which scientific results have been arrived at, than to witness the results themselves. So we cherish these volumes, not only for the substantial advances in obstetric medicine which they record, but as evidence of the workings of a bold and powerful spirit which could be deterred by no authority—traditional or living—from re-examining the foundations of doctrines that seemed to other men the most securely settled. All we could have wished would have been to see the author true to his original design, and true to himself. The plan of reproducing, in their original words, the memoirs thus collected, should have been consistently adhered to. It is in the departure from this plan that we see the only cause for complaint.

The following example of substitution cannot, we think, be sanctioned by the laws of literary and scientific equity. At page 451 of the second volume, is an article entitled "Placental Phthisis, or Apnoea, as an Intra-Uterine Cause of Death

amongst Premature Children, its Varieties and Treatment:" under the title is the following reference—"From the *Edinburgh Monthly Journal of Medical Science*, February, 1845, p. 119." A foot-note informs the reader, that this is "A lecture, extended from the original, especially in that portion which relates to the morbid states of the placenta. See first part of the same lecture in vol. i., p. 628."

These notices, and the following passage, in the Preface to vol. ii., are all the indications with which we are favoured as to the modifications and additions introduced:

"Other contributions have been, in a great measure, re-modelled and re-written by Dr. Simpson for the present volume, as, for example, the 'Observations,' (p. 451); 'On Placental Phthisis as an Intra-Uterine Cause of Death amongst Premature Children'; the general laws (p. 476) regulating the 'Simultaneous Co-existence and Progress of Cow-pox and Small-pox'; and the remarks (p. 311) 'On the Morphology of the Male Uterus, and on the Unity of Organic Type between the two Sexes.'"

Now, it is our duty to point out, that students, and even practitioners who are not versed in the critical study of obstetric literature, would, notwithstanding the indications we have referred to, fall into grave misconception as to material facts from reading this so-called Clinical Lecture on Placental Phthisis.

1. The title, "Placental Phthisis, or Apnoea," is new.

2. Almost the whole of that portion describing the diseases to which the placenta is applicable, is new.

3. In the original lecture, printed in 1845, is the following passage, under the head "Intra-Uterine Causes of Death amongst Premature Children, and their Treatment":—

"The pathological causes that lead to this unhappy result, sometimes in a succession of pregnancies in the same female, are, as far as I have yet investigated them, principally three in number—namely,

"First, Peritonitis in the Fetus. . . . Secondly, Inflammatory Induration and Degeneration of the Placenta. . . . Thirdly, Hypertrophy of the Placenta."

The description of these conditions occupies less than a page of the Journal.

4. The "extended" lecture, substituted in the volume of 1856, points out (excluding Peritonitis of the Fetus) six different morbid conditions of the placenta—namely, Congestion, Inflammation, Gangrene, General Œdema, Stearoid or Fatty Degeneration, and Hypertrophy.

Now, it must be observed that all these conditions are described as forming part of a clinical lecture published in 1844, at a time, when, "as far as the professor had then investigated," he could only refer to two morbid conditions—namely, inflammation and hypertrophy. Indeed, it is quite certain that no clear idea was entertained of true fatty degeneration of the placenta in 1845, or until the observations of Barnes and Kilian were made known in 1855. And, beyond Virchow, Handfield Jones, Robin, and one or two other pathologists, it is doubtful whether clear ideas are

yet entertained. The appearances referred to by Dr. Simpson in this volume, as described in the writings of Hoboken, Haller, Stein, D'Outrepoint, Wilde (whose work is a mere compilation), Charante, Brehm, belong to totally different conditions. As far as it is safe to interpret pathological descriptions drawn up when the methods of anatomical analysis were so imperfect as to render just conclusions difficult, if not impossible, it is in the highest degree probable that these appearances belonged to various transformations of effused blood and fibrine—that is, of matter extraneous to the normal structure of the placenta. The true fatty degeneration of the placenta described by Dr. Barnes is a change in the proper decidual and vascular elements of the placenta, analogous to fatty degeneration of the kidney, liver, heart, and other organs of the adult body. The professor, even in the following paragraph, which may be presumed to have been written in 1855 or 1856, still confounds the fatty molecular appearances assumed by various accidental deposits under the name of fatty degeneration of the *placenta*.

"But several years ago, and before the appearance of Dr. Barnes's essay, my friend and colleague, Dr. Bennett, carefully examined some specimens of both general and partial fatty degeneration of the placenta with which I furnished him, and in most of these the co-existence of coagulable lymph, indurations, &c., showed that the fatty molecules were either thrown out as inflammatory exudations, or were formed by inflammatory exudations, subsequently degenerating into fat particles, and which in other respects indicated the pre-existence of some degree of placental inflammation."

That the conditions thus cited on the authority of Dr. Bennett are occasionally, nay, often, found is perfectly correct; they are carefully pointed out in Dr. Barnes's essays, and as carefully shown to be something distinct from the true fatty degeneration of the placenta. Dr. Simpson's implied claim to priority in the discovery of this important pathological condition is therefore sufficiently refuted.

All this confusion and all this appearance of injustice to others would have been avoided by following a plan which is universally adopted in the issue of new editions of works, where questions of dates, persons, and history are concerned—namely, that of simply enclosing between [] brackets the new additions. Nor can anything less than obvious marks of this kind serve the purpose. Certainly such general expressions as those quoted for the preface and foot-note amount to nothing.

The memoir on Puerperal Arterial Obstruction and Inflammation, a new feature in this volume, is one of deep interest and value. The general term, puerperal fever, embraces a multitude of different pathological conditions; under this arbitrary and irrational synthetical expression we have concealed our ignorance, and retarded the progress of pathological analysis. These researches of Professor Simpson throw a clear light upon the true nature of many cases of puerperal disease that had hitherto been misunderstood.

In this important memoir, the following propositions are laid down, and richly illustrated by argument and clinical facts :—

"Arterial obstructions in the puerperal female seem capable of being produced by a variety of morbid causes, particularly—1, by the separation of old or organized cardiac vegetations, and their subsequent transference into the arterial canals; 2, by the passing forward into the current of the circulation of recent fibrinous masses formed in the cavities of the heart or larger arterial vessels; 3, by local arteritis; 4, by laceration of the internal coats of the occluded vessels; and, 5, by morbid materials carried from the systemic venous system, and lodged in the pulmonary artery or its branches."

The experiments and researches of Mr. Henry Lee and Dr. Mackenzie favour the conclusion that coagula may form in any part of the arterial or venous system from contact with vitiated matters; and that matters capable of so acting upon the blood are extremely apt to get into the circulation during the puerperal state is abundantly proved. The recent researches of Dr. B. W. Richardson on the Causes of the Coagulation of the Blood are also especially interesting in relation to this question.

In this volume are also gathered together the author's writings upon Anæsthesia, and the use of Chloroform. It is now needless to say that these writings, in which were first revealed the most important means of lessening the sum of human misery in the present and all future generations, are destined to preserve for Professor Simpson an imperishable renown.

Clinical Lectures on Paralysis, certain Diseases of the Brain, and other Affections of the Nervous System. By ROBERT BENTLEY TODD, M.D., F.R.S., Physician to King's College Hospital. Second Edition. London: John Churchill, 1856, pp. 474.

THERE are few diseases which tax the ingenuity of the physician more than those where the cerebro-spinal system is directly involved; and hence, knowing all the difficulties lying in the way of the correct diagnosis and satisfactory treatment of such affections, we cordially hail a second and improved edition of a book like this. Not only does the work tend to instil clear and distinct notions respecting cerebral diseases into the minds of the pupils for whom the Lectures were originally delivered; but it is evident that the pathological and therapeutical views contained in them, based as they are upon actual observation of cases, will serve as a valuable guide to practitioners of medicine.

Dr. Todd says, in the preface to the second edition, that "the object of the Lectures has been to teach, by examples, various important points in the natural history, pathology, and therapeutics of paralytic, cerebral, and other nervous affections;" and we may add, after perusing the Lectures, that, upon the points treated, hinges the proper method of viewing and managing these affections. The author speaks successively of lead palsy; of paralysis from pressure on a nerve;

hysterical hemiplegia; paralysis depending on lesion of the brain; paralysis of the portio dura; white softening and apoplexy; cerebral symptoms from renal disease; and hemiplegia, central, peripheral, epileptic, and spinal.

These certainly comprise the cerebro-spinal pathological phenomena which we most frequently meet with in practice: and as Dr. Todd founds his views on actual cases, the student and practitioner have the advantage of following the manifestations of the diseases and the results of treatment in a strictly practical manner, under the guidance of a sound pathologist and successful therapist.

Our attention has been especially arrested by the cases of syphilitic disease of the dura mater connected with epileptic fits. The author enters fully into the pathological anatomy of these specific affections, and we are shown the cause of the fits noted in the progress of these cases. The remarkable effects of iodide of potassium are dwelt upon, and these are certainly of a most decisive description, both as regards the disappearance of the symptoms and the diagnosis. But we must say that the kind of *post diagnosis*, depending upon the effects of a therapeutical agent, has not much favour with us; especially when we recollect to how many errors such diagnosis, founded upon the apparent effects of mercury, misled Hunter, Abernethy, and others.

However this may be, Dr. Todd's cases are valuable, and we find them corroborated by others of the same nature, published by Dr. Schützenberger (*Medical Gazette* of Strasburg, March, 1850); and M. Sandras, in his work on Nervous Diseases. In *L'Union Médicale* (October 31st, 1854). M. Beyran has also given a case of paralysis of the motor oculi nerve depending on syphilis, where the specific treatment was completely successful; and M. Costilhes has inserted in the *Gazette Hebdomadaire* (March 30th, 1855), a case of syphilitic hemichorea.

Before concluding this glance at the second edition of Dr. Todd's valuable Lectures, we must distinctly express our approval of the efforts made, in recent times, to improve clinical instruction; and it is plain, from the care bestowed upon these Clinical Lectures, that Dr. Todd considers this branch of medical education extremely important. By publishing the Lectures, the author has conferred great benefit upon all practitioners of medicine and students.

Headaches, their Causes and their Cure. By HENRY G. WRIGHT, M.D., Physician to the Royal St. Pancras Dispensary. Second Edition. London: Churchill. 1856.

No better proof, if such were wanting, of the correctness of our estimate of Dr. Wright's little work, expressed on its first appearance only eight months ago, could be given now than the fact that a second edition has been already called for. Short, however, as is this period, its author has devoted a considerable amount of labour to literary research in connexion with his subject, and has added some extremely interesting matter,

derived from records quaint and rare, the product of the fertile imaginations, no less than of the practical experiences, of many a learned physician of ancient time; and inasmuch as to this addition, approved and appreciated as it will be by every reader who possesses a taste for scholarship and a regard for antiquarian lore, he has added some portions belonging more strictly to the pathological part of his work, which tend to enhance its utility in a practical point of view, we have only to reiterate our satisfaction with Dr. Wright's essay, and to recommend it very cordially to our readers.

MacLise's Surgical Anatomy. Fasciculus XIII. Second Edition. London: Churchill.

THIS magnificent work concludes with the present number, which contains four plates, with a copious commentary. It also embraces a table of contents, title-page, &c. We can only repeat what we said some years since respecting the first edition—"We know of no work on surgical anatomy that can compete with it."

The Cyclopædia of Anatomy and Physiology. Edited by ROBERT B. TOOD, M.D., R.F.S., Physician to King's College Hospital, &c. Part XLVIII. London: Longman and Co. 1856.

THIS well-known, worthy, but somewhat dilatory, publication is now close upon its finish. The concluding portions are, we are assured, already in the press. They will contain the article "Uterus," by Dr. Farre, and a copious index to the whole work. The present and 48th Part is occupied by Mr. Huxley's conclusion of the subject "Tegumentary Organs," by "Ruminantia," from Mr. Spencer Cobbold, and by Dr. Allen Thomson's termination of his article on the "Ovum." The latter writer has thought it right to apologize both to the conductors and to the readers of the Cyclopædia for the extreme tardiness with which his obligation has been effected. It is here, however, ably and completely concluded, and the present portion is well and copiously illustrated by wood-cuts.

The Australian Medical Journal. Edited under the superintendence of the Victoria Medical Society. Nos. I and II. January and April, 1856. Melbourne. 1856.

THE first attempt at Medical journalism at the antipodes is really a most able one, and augurs well for the future prospects of medicine amongst our distant countrymen. The two numbers before us would not discredit London, Dublin, or Edinburgh. To the Medical Society of Victoria and to the Hospital of Melbourne the honourable prestige will pertain of having been the first to bestow the scientific character upon the medicine of their new country.

The True Art of Healing: a Discourse on the Rational System of Medicine. The Introductory Lecture to the Winter Session at St. Mary's Hospital on Oct. 1st, 1856. By THOS. K. CHAMBERS, F.R.C.P., &c. pp. 32. London: Churchill.

AN abstract of this lecture has already appeared in our columns. It is an excellent discourse, full of philosophical spirit, and contains much useful matter, well worthy an attentive perusal. The author has ably fulfilled his task.

An Inquiry into the Time of the Introduction and the General Use of the Potato in Ireland, and its various failures since that period. Also, a Notice of the Substance called "Bog Butter." By W. R. WILDE. pp. 19. Dublin. 1856.

THE author traces the history of the potato from its first introduction into Ireland by Raleigh up to the present time, and gives a list of failures of this esculent from the year 1765. The words *potatee*, *pratea*, or *phottie*, used by the Irish, are mere Hibernicisms of the English word "potato." Mr. Wilde endeavours to prove that before the introduction of this vegetable, his country-people lived in a much more advanced state of society than their neighbours, from the fact of their having mills, and a "pure white wheat."

A BATCH OF BOOKS.

AMONGST the works which have of late been published, deserving of notice are the *Life of Cornelius Agrippa*, in two volumes, by W. H. Morley, in which the career and opinions of one of the most extraordinary men that ever lived are portrayed with great power by the author. The *Science of Mind, or Pneumatology*, is carefully and well written. In *The Solar System of The Ancients Discovered*, by John Wilson, two vols., the author exhibits great learning and industry in the elucidation of a most interesting and difficult subject. *The Handbook of Zoology*, by J. Van der Hoeven. Vol. I. Translated by the Rev. Wm. Clark, M.D. This is a translation from the second Dutch edition of this erudite and comprehensive manual, which was published in parts between the years 1846 and 1855, inclusive. The translator was induced to the performance of his task, in consequence of the University of Cambridge (in which he is professor of Anatomy) having, a few years since, directed in a more marked manner the attention of their students to the moral and natural sciences, by proposing honorary distinctions to those who might excel in certain departments of those sciences respectively, and by requiring proof of satisfactory attention to some one at least of such departments, on the part of all candidates for the degree of Bachelor of Arts who are not aspirants for mathematical honours. Dr. Clark has performed his task with great ability, and the English translation is enriched with numerous references to works by the author, too recent for his notice in his own second edition. *The Handbook of Zoology* promises to achieve by this translation a reputation

and popularity in England; equal to those which it has long enjoyed in various countries of the Continent. *Calisthenics, or the Elements of Bodily Culture*, by Henry de Laspée, is a goodly-sized volume, containing 137 plates, in which many hundreds of postures are delineated. It is difficult to believe that any very useful result can be attained by a minute study of these various attitudes, but the book is curious and worthy of perusal. In *Health and Beauty*, by M^{me}. Caplin, there are many useful hints to girls and women regarding dress: and Dr. Lankester's little pamphlet on the *Aquavivarium* contains much information on a subject now occupying general attention.

Chemistry and Pharmacy.

REPORTS

ON THE

PROGRESS OF CHEMISTRY,
ESPECIALLY WITH REFERENCE TO ITS
APPLICATIONS TO MEDICINE AND PHARMACY,
By WILLIAM BASTICK, Esq.,
PHARMACEUTICAL CHEMIST.

No. VI.

The Preparation of Collodion for Surgical Purposes.—For this purpose, Hofmann introduces 1 part of cotton wool into a mixture consisting of 20 parts of the strongest nitric acid, and 30 parts of sulphuric acid, for a quarter of an hour. The operation should be conducted in a glass vessel with cover, and the cotton stirred frequently by means of a glass rod. The cotton is then well washed, to remove the last trace of acid, and pressed strongly in a linen cloth, and before being dried it should be pulled, to separate the knotty portions. The cotton should be now dried in a sieve over a stove. Six parts of the cotton thus prepared are dissolved in a mixture of 120 parts of ether and 8 parts of rectified spirits of wine; to which 3 parts of castor oil are finally added. Hofmann states that this collodion does not crack or contract like that prepared in the usual manner.

Iodide of Potassium as a Test for Ozone.—Cloeze has shown by experiment that the ordinary test for Ozone, the iodized starch, is unsuitable for the detection of ozone in the atmosphere. All the results obtained by these means he considers of no value, because the iodide of potassium is decomposed by the nitrous vapours of the air, and by the volatile oils which are evaporated from aromatic plants, and he finds that even the moisture of the air of a closed room acts in the same way on this reagent, and also that the oxygen emitted from the green parts of plants has no ozone reaction on iodide of potassium.

The Decolorization of Resins.—According to Loch, this object may be accomplished by boiling

five parts of the resin, with one part of carbonate of soda or potash, and twenty-five parts of water, until the resin is dissolved; and, after cooling the solution, conducting sulphurous acid through it until the resin is entirely separated. The white flocculent resin is then washed and dried.

Secretion of Butyric Acid by Beetles.—Pelouze states, that many kinds of the species *Carabus*, when they run about, leave behind a foetid liquid secreted from a gland near the anus, which, as he has proved, contains butyric acid.

Solubility of Oxalate of Lime in Phosphoric Acid.—Neubauer finds that oxalate of lime dissolves in considerable quantity, especially by heat, in phosphoric acid. When such a solution is much diluted with water, it remains clear in the cold as long as it contains free phosphoric acid; but when a solution of caustic soda is gradually added by drops, a point is reached at which the precipitate formed only slowly disappears. If the solution thus treated be set aside for twenty-four hours, the greater part of the oxalate of lime crystallises out. The mother liquid, which is still strongly acid, will, upon the addition of caustic soda, afford a second and a third crop of crystals.

Mineral Waters containing Butyric, Propionic, Acetic, and Formic Acids.—Scherer, who has recently analysed some mineral waters derived from springs situated at Brückenau in Bavaria, has detected in them determinable quantities of butyric, propionic, acetic, and formic acids in combination with soda.

Method for the Detection and Quantitative Estimation of Quinine and other Alkaloids when combined with Fatty Oils.—If, for example, the presence of quinine, as well as its quantity, in cod-liver oil have to be determined, agitate strongly a measured quantity of the oil with a solution of sulphate of soda in water slightly acidulated with sulphuric acid. After the aqueous liquor has separated, by rest, from the oil, separate by means of a pipette rather more than half the aqueous solution employed. Filter this solution to remove a few adhering globules of oil, and then measure off exactly one half of the quantity of the aqueous solution originally added to the oil. Precipitate the quinine, if present, from this filtered solution by means of caustic soda; slightly wash the precipitate with water and redissolve it in alcohol; filter, and evaporate the filtrate to dryness on a water-bath; the residue will represent one-half of the quantity of quinine present in the quantity of cod-liver oil measured off.

The precipitate obtained from the solution by the caustic soda should be examined by the methods described in the ordinary manuals of chemical analysis, to learn whether it be quinine or not.

The method described for separating quinine from cod-liver oil is applicable for the separation

of other alkaloids when combined with fatty oils.—(Bastick.)

The Existence of Uric Acid, Inosite, &c., in Animal Bodies.—Cloëtta has conducted a series of investigations, on a large scale, for the purpose of ascertaining the existence of various bodies in different organs of animals. The following are the results:—

Lungs.—In the juice of fifty pounds of ox lungs, he obtained inosite, uric acid, taurine, and leucine.

Kidneys.—From thirteen pounds of ox kidneys, Cloëtta obtained about ninety grains of inosite. He could not detect uric acid, but found a mixture of cystine, and another nitrogenous organic body, which has the properties of xanthine or hypoxanthine. In another experiment with a fresh portion of ox kidneys, taurine, but no cystine, was detected. Cloëtta, therefore, considers that cystine is not a constant ingredient in these organs, and is probably produced by the decomposition of taurine.

Urine.—Cloëtta failed to discover inosite in ten pounds of cows' urine. A negative result was also obtained with four pounds of human urine. On the contrary, in the urine of an individual suffering from morbus Brightii, inosite was with certainty detected.

Spleen.—A considerable quantity of inosite was separated from the spleen of an ox. Proportionately as much inosite was found in this organ as in the lungs. Uric acid was found in the spleen, corroborating Scherer's observation, and also two other bodies imperfectly examined. Cloëtta further found hypoxanthine and leucine.

Liver.—In the liver of the ox, inosite, as well as uric acid, were found; the latter was proportionately present in greater quantity than the former.

Blood.—In the blood of the jugular vein of an ox, Cloëtta could not detect either inosite or uric acid.

Carboazotic Acid, a new Therapeutic Agent.—The intense bitter of this acid suggested to Messrs. Calvert and Moffatt that it might be advantageously employed in medicine. It was observed that the carboazotates of ammonia and iron answered best, as they did not produce cramps in the stomach like the free acid. Carboazotate of iron has succeeded perfectly in several cases of cephalalgia, and carboazotate of ammonia in cases of anæmia, in intermittent fever, and hypochondria. These salts have been administered in doses of from $\frac{3}{4}$ gr. to $1\frac{1}{2}$ gr. per day, and, when taken to the extent of 15 gr., cause the skin of patients to become yellow. This coloration disappears after a few days, upon the discontinuance of the use of this remedy. Messrs. Calvert and Moffatt found that the acid passes off with the urine.

Adipocere.—According to Wetherill, this substance consists of stearic and palmitic acids, but never contains glycerine, cholesterine, or ammo-

nia. In one instance it contained lime in combination with the acids.

The Proportion of Theine in various Substances.—Dr. Stenhouse has published the following table of the quantities of theine present in the bodies there enumerated, which shows that, of all known sources, guarana is the richest in theine:—

	Percentage of Theine.
Guarana.....	5.07
Good Black Tea.....	2.13
Black Tea from Kemaon, E.I.....	1.97
Various Samples of Coffee-beans, from 0.8 to 1.00	
Dried Coffee-leaves from Sumatra.....	1.26
Paraguay Tea, from <i>Ilex Paraguayensis</i>	1.20

Preservation of Yolk of Egg.—Mosselmann states that by adding five per cent. of neutral sulphite of soda to yolk of egg, it may be preserved for some time without losing its colour or clearness, and without becoming putrid.

Method of preserving a Solution of Gallic Acid.—Lloyd has found that the addition of a drop of oil of cloves keeps a solution of gallic acid unchanged for a considerable time.

Presence of Cyanogen in Carbonate of Soda.—Hamle states he has met with some carbonate of soda which gave a blue reaction on the addition of tartaric acid. He ascribes this reaction to the presence of cyanogen in the carbonate of soda and of iron in the tartaric acid.

Manganate of Potash as a Bleaching and Deodorizing Agent.—Gössman, who has tried the efficacy of manganate of potash as a means of removing the colouring matter of organic compounds, such as uric, hippuric and cyanuric acids, pronounces it to be the most suitable agent yet employed for that purpose, and believes that it will admit of very extended applications.

This salt, and its corresponding soda one, as well as the hypermangates of soda and potash, have been lately introduced as a commercial speculation, to supersede the use of chlorides of zinc and lime as disinfectant and deodorizing agents. Professor Hoffman regards this idea as a very happy conception, and it seems well worthy of the attention of those engaged in sanitary measures.

Preparation of Styracine.—Gössmann proposes the following excellent method for the preparation of styracine:—The styrax is digested with five or six times its weight of dilute solution of caustic soda, at a temperature not exceeding 86° Fahr., until the insoluble part of the styracine has become colourless. This residue is filtered off, washed and allowed to dry and then dissolved in alcohol containing a little ether. If this solution be coloured, it must be heated with animal charcoal, and then filtered. After some time the styracine separates in colourless crystals.

The Decomposition of Uric Acid in the Organismus.—Neubauer has instituted some investigations on rabbits, for the purpose of ascertaining what changes uric acid undergoes in the organismus. In the normal condition, with pure vegetable food, the urine of these animals was turbid and had a tolerably strong alkaline reaction. By far the greater part of its sediment consisted of the characteristic crystals of carbonate of lime. When the urine was not quite fresh, some crystals of the ammonio-phosphate of magnesia were found in it, and also some oxalate of lime in its well known form. The urine in addition contained SO₃, Cl, a little PO₄, and only small quantities of urea; uric acid could not, by the most careful examination, be found.

When fed with white bread, the urine of the rabbits speedily acquired a slight acid reaction. Oxalate of lime, as before, was observed in the sediment, and the quantity of urea increased considerably—in fact, rose, from 1.5 grm. to 2.3 grm. in twenty-four hours. The quantity of phosphoric acid also increased.

In five days the rabbits took with their food 12 grm. of uric acid, without any apparent disagreeable result. Their urine was collected from time to time, and dried in a water bath: a considerable quantity of urea was found therein, but no hippuric acid. The examination of this urine for oxalic acid, when conducted with great precaution, proved the presence of oxalate of lime. Uric acid was also detected in well-defined crystals. Magnesia and phosphoric acid were found, but no allantoin.

As the normal urine of rabbits always contains oxalate of lime, the production of oxalic acid could not be attributed alone to the oxidation of the uric acid administered to them. It appears probable that the uric acid is chiefly decomposed in the organismus into carbonic acid and urea, because in the research detailed no body was found which could be regarded as a farther product of the decomposition of that substance. The increase of urea, on the contrary, could be readily observed; for while the animals took daily from 2 to 3 grm. of uric acid, and at the same time emitted about 4 grm. of urea, the separation of urea sank when the same food was administered for some days without the uric acid, to 2 grm., and the quantity separated rose again immediately upon the admixture of the uric acid with the food.

The rabbits were now fed with carrots, grass, &c., to regain their normal condition. The urine had again acquired its normal alkaline reaction, and contained, upon an average about 1.34 grm. of urea. Within two days the rabbits were supplied with 24 grm. of uric acid mixed with carrots. The urine with this diet still retained its alkaline reaction, and during three days it afforded 20 grm. of urea; but on the fourth, the quantity of urea sank to its normal condition.

Now, if 1.34 grm. of urea was emitted upon an average in twenty-four hours, when the animals were fed upon a pure vegetable diet, we have to

consider about 4 grm. of urea emitted per day, as the oxidated product of the uric acid swallowed by the rabbits. These results therefore appear to show that in the normal condition of animals uric acid is decomposed into urea and carbonic acid, but that during a retardation of the oxidation process by sleep, and by many pathological conditions oxalic acid is formed. For both Wöhler and Frerichs, and myself, have observed that when uric is taken before sleep, in the sediment obtained from the morning urine oxalate of lime could be easily observed.

Miscellaneous Correspondence.

SULPHITE OF SODA IN CHOLERA.

To the Editor of THE LANCET.

SIR,—As the cholera is again showing a disposition to pay a European visit, I think it may be useful to publish in your columns, if you permit me that distinction, a remedy that appeared of value in some extreme cases of choleraic diarrhoea that were under my care some two years back. The drug, then, that seemed to be so useful was the sulphite (not sulphate) of soda, and it was used in the following manner:—One ounce of the sulphite of soda was dissolved in eleven ounces and a half of water, to which half an ounce of laudanum was added; and of this mixture half a tablespoonful was given, with the same quantity of milk, every twenty minutes. The ordinary plans for keeping up the circulation were also employed, such as poultices to the belly and legs, &c.; and the cases all did well: therefore I am disposed to praise the bridge (perhaps too much) because it carried me over. I do not offer any theory as to the *modus operandi* of the sulphite, but I hope that it may prove as useful in other hands as it has proved in mine.

I have the honour to be, Sir, your very obedient servant,

W. C. CALTHROP.

Withern Alford, Oct. 1856.

AMPUTATION OF THE THIGH.

To the Editor of THE LANCET.

SIR,—Having had the honour of being dresser at the London Hospital in 1853–54, I am of course anxious to do all I can to add my mite to the credit of the instructions received within its walls. When I arrived in America, June 14th, 1854, the operation of Mr. Luke for amputation of the thigh, although known by means of the English publications, had not, to my knowledge, been attempted either in public or private practice. Since that time, I have had the opportunity of amputating four times by this method,—namely, one of the shoulder-joint, two of the thigh, and one of the forearm. The medical gentlemen who have been present have expressed their satisfaction at the rapidity of the operation, and the accuracy with which the flaps come together. The recovery of all these cases was excellent; the stumps perfect,

the greater part uniting by the first intention. The peculiar method of dressing practised by Mr. Luke was adopted in all the cases. I find the anterior and posterior compresses of lint, as applied by Mr. Luke, to afford all the support necessary, and have been able to dispense with the use of bandages or rollers, trusting to sutures, compresses, and adhesive plaster, alone, to support the flaps. Bandages and rollers appear to me to soak up the discharge, to prevent hæmorrhage being readily noticed, and if much blood or discharge soak in them they become stiff, difficult to be removed, and perhaps bring some arterial ligatures with them. Mr. Critchett, in his work on Ulcers, says that “complete and uniform support cannot be obtained by an ordinary bandage, however skilfully applied;” and it is true that an ordinary roller applied to a stump after amputation, soon cuts in one place and becomes loose in another, thus defeating its object. Mr. Fergusson, in his “Practical Surgery,” p. 161, says: “I do not deem it requisite always to apply even a somewhat loose roller; I have seen a stump of a thigh admirably treated without any covering at all.” Mr. Luke’s method of dressing effectually does away with the “thick, greasy dressings,” which Mr. Fergusson so much abhors. Mr. Guthrie, in his “Military Surgery,” describes this method of dressing, and says that “a bandage is to be applied carefully around the stump.” This may, I think, be safely omitted, and then we have a dressing more safe, cleanly, and comfortable than any other ever devised. The discharge from the track of the ligatures is not soaked up, the ligatures themselves are not interfered with when the dressings are removed, and the limb rests comfortably on its posterior cushion whilst the anterior constantly presses the upper flap towards the lower, preventing the danger of hæmorrhage to any extent, and favouring the immediate union of the whole extent of both flaps. I believe Mr. Luke’s method of amputation and dressing will be adopted over the whole civilised world, as the best ever yet imagined, being perfect in theory, perfect in practice.

I am induced to send these remarks to THE LANCET, hoping that they may lead surgeons in the United States, who read that Journal, to make a trial of Mr. Luke’s method. I am satisfied that they would never leave it for any other.

I am, Sir, yours, respectfully,

W. C. B. FIFIELD, M.R.C.S.L.

Weymouth, 1856

BUCHU IN GONORRHOEA.

To the Editor of THE LANCET.

SIR,—I beg, through the medium of your valuable paper, to call the attention of the profession to the infusion of buchu as a remedy for gonorrhœa. I have found from extensive experience that the buchu is quite as efficacious as the balsam of copaiba; consequently it is preferable, as it does not possess that disagreeable odour so objected to by patients, nor can the friends of the

patient be aware, by any inspection or smell of the medicine, of the nature of the complaint under which the individual is labouring. I have treated during the last twelve months upwards of one hundred cases of gonorrhœa by the administration of the infusion with the greatest success, rarely having recourse to injections, except where the disease has been neglected for some time.

I am, Sir, your obedient Servant,

HENRY HANCOCK, M.D.,

Late Assistant-Surgeon 5th Royal Lancashire Regiment.

Wolverhampton, August 1856.

News Items, Medical Facts, &c.

MODE OF REDUCING STRANGULATED HERNIA, AFTER FAILURE OF THE TAXIS, BY A BLOODLESS OPERATION.—M. Seutin, the eminent surgeon of Brussels, is endeavouring to establish, in a Belgian Medical journal, the superiority of *tearing* either the inguinal or crural ring, over incising the same, for the reduction of strangulated hernia. He quotes experiments on the dead body, and several successful cases; and is confident that his method will soon supersede the operative measures generally resorted to. He places, first, great reliance on graduated taxis continued with due precautions for a considerable period; and when this fails, he endeavours to hook his index-finger round the margin of the ring, by passing it between the tumour and the abdomen; and by using a certain force, he causes the fibres of the external oblique to give way and crack to an extent sufficient for the reduction of the hernia. M. Seutin defends his practice with considerable ability, and hopes trials will be made.

CONSIDERABLE HYPOSPADIA; FECUNDATION.—Dr. Traxel, of Kremsier, (*Weiner Med. Wochenschrift*, 1856, No. 19,) was lately called upon to decide on the sex of a child, which presented exactly the same genital malformation as its father. The latter had hitherto been taken for a woman, and sleeping habitually in the same bed with a fellow farm-servant, really of the female sex; the child had been the consequence of that circumstance. The following is the condition of the father:—The penis is shorter than usual, but thicker and imperforate; the scrotum is divided in two sacs, each of which contains a testicle. At the root of the penis, in the anterior commissure of the sacs, there is a foramen, which would admit a small pea, and from that foramen springs a groove running along the under part of the penis. There is no prepuce. In the groove, and about a line behind the corona, are two elliptical openings, large enough to admit a bristle, and another small hole is observed further back, two lines from the urethral orifice. The author of the paper is inclined to believe that the anterior foramina are the orifices of the ejaculatory ducts, and that by their means fecundation had taken place. Perhaps it would be simpler to look upon

them as the openings of the mucous ducts usually found in this region, and to conclude that fecundation had taken place at the foramen allowing of the passage of the urine.

SANITARY EFFECTS OF TREES.—The interposition of a dense forest, of a high wall, a chain of elevated hills, or any other mechanical obstacle, has been known to protect the inhabitants of villages, of camps, of convents, and of single habitations from the pestiferous influence of neighbouring marshes. A convent situated on Mount Argental, near the village of St. Stephano, was for a long time remarkable for its salubrity, until the trees by which it was surrounded were cut down, when it became extremely sickly.

STATISTICS OF CHEMISTS AND DRUGGISTS.—In 1831, the number of chemists and druggists in England was 5835; while in 1851, there were 3632 men and 12 women carrying on the business under the age of twenty years, and 11,701 men and 298 women of twenty years of age and upwards (exclusive of 15,163 surgeons and apothecaries); making a total of 15,643 persons, unrestricted, uncontrolled, and irresponsible, with a stock-in-trade sufficient to depopulate the whole continent of Europe.—*Letter to "The Times" condemnatory of the Sale of Poisons.*

INDISCRIMINATE SALE OF POISONS.—This week, as is generally the case on the approach of the winter months, cases of suicide and attempted suicide have been numerous, but poison has by far predominated over all other agents used by the unfortunate to destroy life. The police reports daily teem with such cases. Mr. Rodgers, of St. George's Hospital, states: "Between one A.M. of November 3rd and half-past three P.M. of the same day, we had no fewer than four women admitted who had taken laudanum in large quantities. Fortunately, only one case proved fatal."

AMBULANCES FOR INFECTED PATIENTS.—The parish of St. Mary, Islington, has provided an ambulance for the removal of small-pox patients, to avoid the necessity of using the ordinary street-cabs. This excellent example should at once be followed by every London parish.

DR. ALISON.—The sum of £250 has been voted by the town council of Edinburgh, out of their "special purposes fund," as an offering to Dr. Alison, on his retirement from the Chair of Medicine in the University.

PINEL.—A bust of Pinel has just been placed in the French Academy. The ceremony of unveiling was made the occasion of some solemnity.

CHICHESTER INFIRMARY.—At a general meeting of governors held on the 30th ult., Mr. E. H. May was elected house-surgeon, *vice* Mr. H. C. Holman, resigned.

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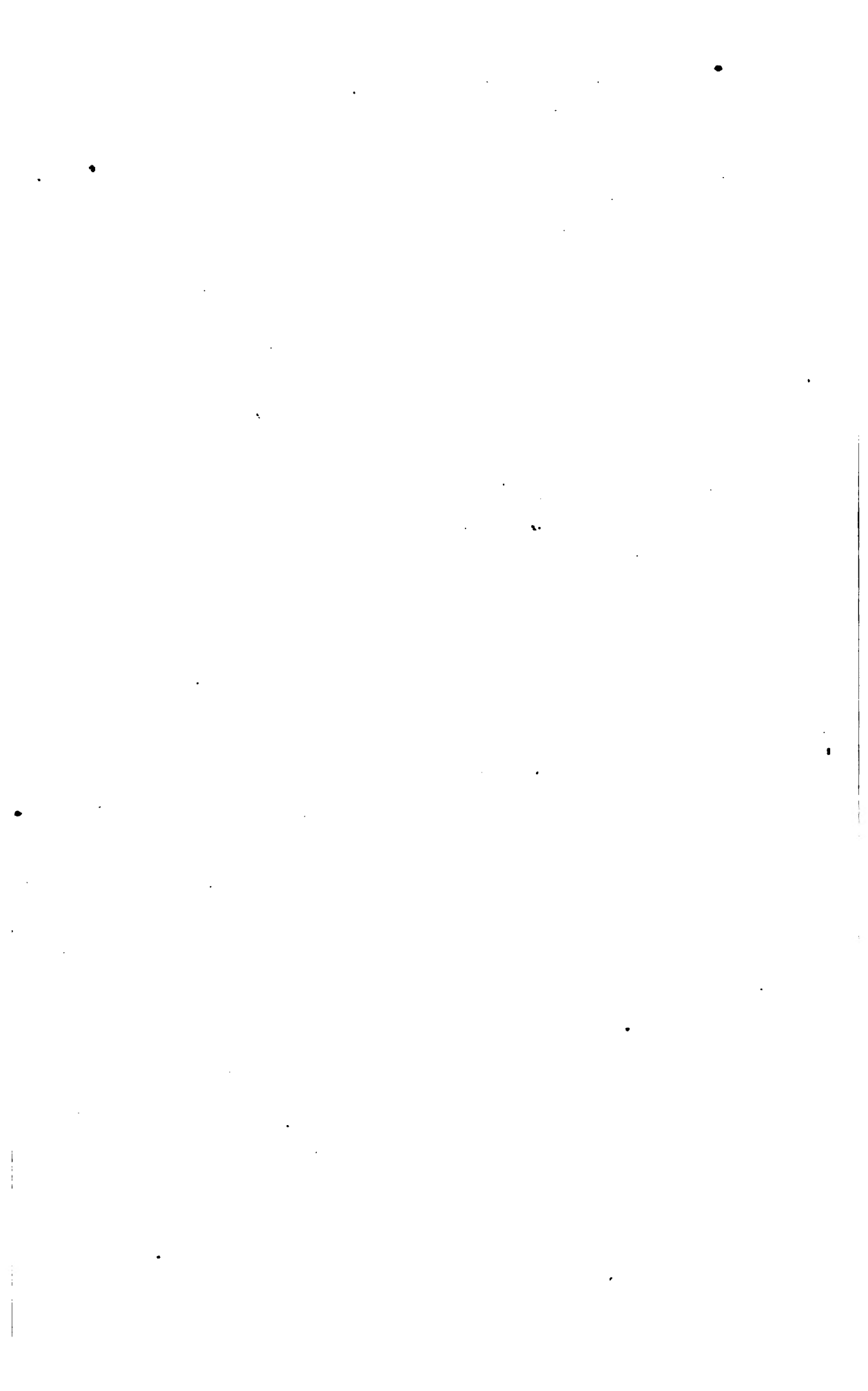
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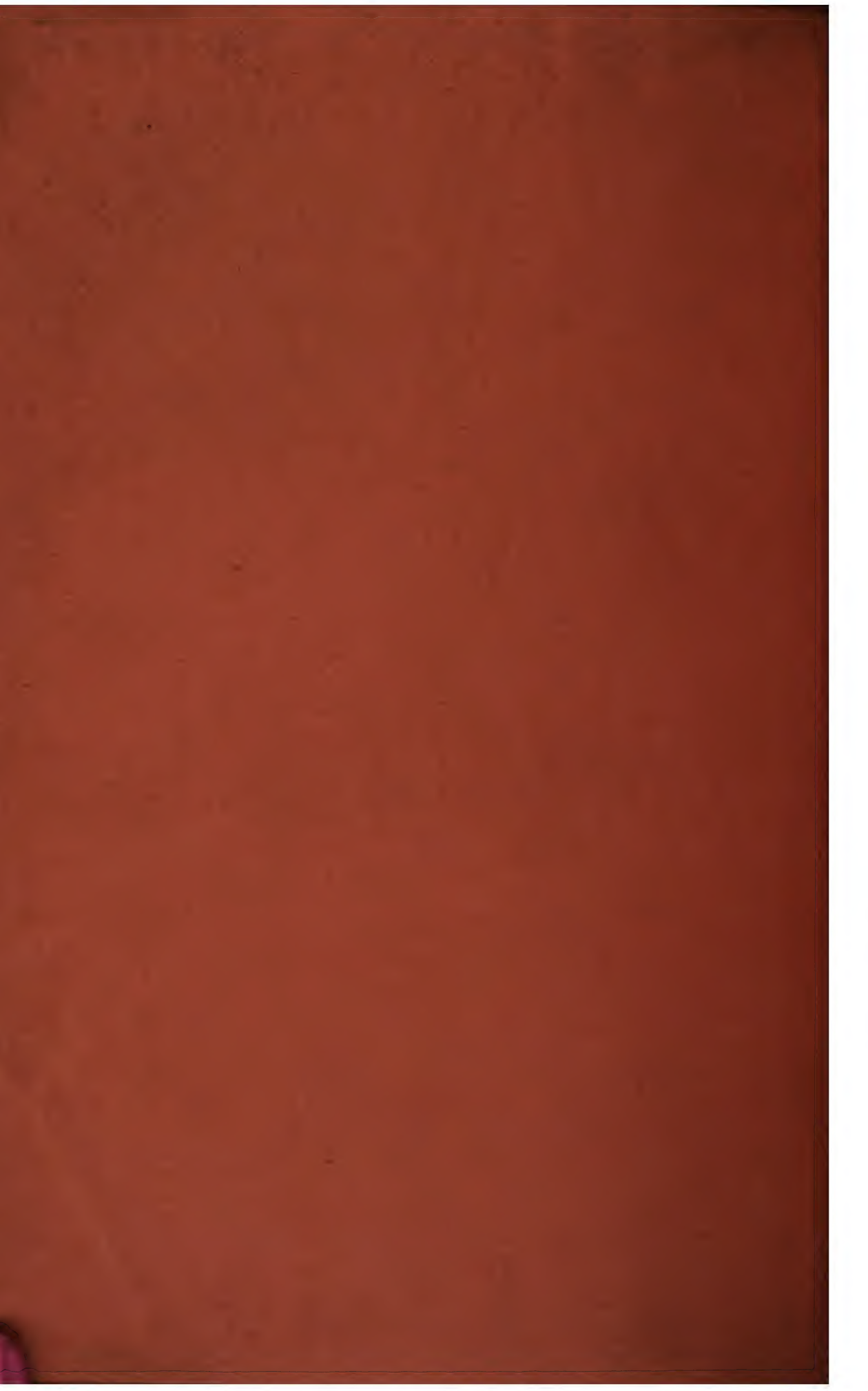
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3 gal
179 +

